TAB	DESCRIPTION	ACTION
1	IDAHO STATE BOARD OF EDUCATION REPORT ON COMMONALITIES AND DIFFERENCES AMONG COLLEGES AND SCHOOLS WITHIN IDAHO'S PUBLIC HIGHER EDUCATION INSTITUTIONS	Information Item
2	NEW GRADUATE PROGRAM – MASTER OF NURSING AND MASTER OF SCIENCE IN NURSING – BOISE STATE UNIVERSITY	Motion to Approve
3	REPORT ON GOVERNOR'S NURSING TASKFORCE	Information Item
4	STUDENT AID TASKFORCE RECOMMENDATIONS	Information Item
5	HIGH NEED TEACHER LOAN FORGIVENESS LEGISLATION	Information Item
6	SCIENCE AND TECHNOLOGY ADVISORY COUNCIL (STAC) LEGISLATIVE STIMULUS PACKAGE	Information Item
7	REVIEW OF COMMUNITY COLLEGE INTERIM COMMITTEE RECOMMENDATIONS	Information Item
8	UPDATE ON THE GRANGEVILLE SCHOOL DISTRICT SPLIT	Information Item
9	IDAHO'S ASSESSMENT SYSTEM APPROVAL UNDER TITLE I OF THE ELEMENTARY AND SECONDARY EDUCATION ACT OF 1965 (ESEA) AS AMENDED BY THE NO CHILD LEFT BEHIND ACT OF 2001 (NCLB)	Information Item

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SUBJECT

Idaho State Board of Education Report on Commonalities and Differences among Colleges and Schools within Idaho's Public Higher Education Institutions

REFERENCE

December 1, 2005	The Board directed the Presidents to review respective Colleges and programs and provide a series of reports to assist them in understanding the commonalities and differences among disciplinary colleges and schools within the public institutions of the state.

APPLICABLE STATUTE, RULE, OR POLICY

N/A

BACKGROUND

The State Board of Education oversees higher education academic delivery and approves all new postsecondary programs from Idaho's public institutions. As per Board Policy III.Z.(1), the purpose of the policy is "to ensure that Idaho postsecondary institutions meet the educational and workforce needs of the state through academic planning, alignment of programs and courses, collaboration and coordination. It is the intent of the State Board of Education (the "Board") to optimize the delivery of academic programs while allowing institutions to grow and develop consistent with an appropriate alignment of strengths and sharing of resources."

DISCUSSION

At the December 2005 meeting, the Board requested that the Presidents examine the various colleges and programs at their respective institutions and provide a report on how programs are different and similar and if there are commonalities, why those programs or colleges are necessary within the state.

The Council on Academic Affairs and Programs (CAAP) committee, in concert with Board staff, discussed and developed a template for institutions to complete to ensure the Board receives like information. In addition to the template, a timeline was created and other disciplines were identified that will be reported to the Board over the next year. The template and timeline were shared with the Presidents' Council before a final template was agreed upon. A final template and timeline was shared with the Board in June and was provided to the institutions for completion. It was agreed that the first series of these reports would be on engineering programs in the state to be reported at the Board's October meeting. Attached is a report for Boise State University, Idaho State University, and University of Idaho.

IMPACT

Board staff provided the following analysis of enrollment for the engineering programs offered by Boise State University, Idaho State University, and the University of Idaho.

Idaho's Public Higher Education Institutions

Engineering Programs

Enrollment

	BSU	% of Total	ISU	% of Total	UI	% of Total	Total Engineering Enrollment	% Change	Total Institution Enrollment	% Change
2005	1,425	34.7%	589	14.3%	2,095	51.0%	4,109		42,733	
2006	1,490	37.0%	565	14.0%	1,969	48.9%	4,024	-2.1%	42,852	0.3%
2007	1,609	41.0%	542	13.8%	1,771	45.2%	3,922	-2.5%	41,156	-4.0%

ATTACHMENTS

Attachment 1 – Boise State University BSU – Page 1
Attachment 2 – Idaho State University ISU – Page 1
Attachment 3 – University of Idaho UI – Page 1

STAFF COMMENTS AND RECOMMENDATIONS

Staff has no comments and recommendations.

BOARD ACTION

This item is for informational purposes only. Any action will be at the Board's discretion.

Idaho State Board of Education Report
on
Commonalities and Differences among Colleges and Schools
within
Idaho's Public Higher Education Institutions

BACKGROUND

At the December 2005 Idaho State Board of Education meeting, the college and university presidents were asked to prepare a series of reports to assist the board in understanding the commonalities and differences among disciplinary colleges and schools within the public institutions of the state.

SCOPE OF WORK

The following reports will be provided at the regularly scheduled Board meetings.

School/College	Board Meeting
Engineering	October 2006
Education	February 2007
Business	June 2007
Health Sciences (selected areas TBA)	October 2007

PROCESS

The institutions will prepare a report based on the following template. Reports from the institutions will be reviewed and an executive summary will be prepared for Board review.

Date: August 31, 2006

Institution: Boise State University

School/College/or program(s) within the disciplinary area to be reviewed:

College of Engineering
- Department of Civil Engineering
- Department of Computer Science
- Department of Construction Management
- Department of Electrical and Computer Engineering
- Department of Instructional and Performance Technology
- Department of Materials Science and Engineering
- Department of Mechanical and Biomedical Engineering

I. Brief History of College/School (limit to 250 words):

The history of the College of Engineering at Boise State University is inexorably linked to the transformation of southwest Idaho into a vibrant technology center. Engineering in Boise was initially a pre-engineering program at Boise Junior College in the 1950s. In

1988, the University of Idaho established an off-campus center in Boise in cooperation with Boise State University to provide expanded undergraduate engineering offerings. By 1995, approximately 50 engineering students had graduated with the majority of their courses taken in Boise, and more than 100 students were enrolled in the program. With the growth of Micron Technology and other high-tech companies, demand increased in southwest Idaho for engineers and for graduate engineering education for area professionals. With approval from the Idaho State Board of Education, Boise State University began offering four-year undergraduate engineering programs in 1996, and the College of Engineering was formed in 1997.

Building the College of Engineering was literally a community effort with Micron Technology leading a $6 million challenge that was met with contributions from the Laura Moore Cunningham Foundation, Harry W. Morrison Foundation, Idaho Power, Intermountain Gas, Extended Systems, ECCO, Nelson Construction, Gannett, and other companies and individuals. Additionally, Hewlett Packard awarded $1.6 million for computer equipment. Micron and area supporters have continued major gifts to grow the college.

Programmatically, the college has been built by strategically adding programs with unique contributions to Idaho technology endeavors, and by recruiting first-rate faculty who can advance Boise State's transition to a Metropolitan Research University of Distinction.

II. Degrees Offered by School/College or Program(s) within Disciplinary Area under Review:

Degree name	Level	Specializations within the discipline (to reflect a national perspective) †	Specializations offered within the degree at the institution††
Biomedical Engineering Undergraduate minor	Minor	Devices and prosthetics Biomaterials Instrumentation Imaging Biomechanics Tissue engineering Bioinformatics	Biomaterials Biomechanics Imaging Bioinformatics
Civil Engineering Undergraduate minor	Minor	Same as below	Same as below
Civil Engineering Bachelor of Science	BS	Architectural Environmental Geotechnical Hydrological Materials Structural Surveying Transportation Water resources (and other specialties)	Environmental Geotechnical Structural Transportation

Civil Engineering Master of Engineering	MEngr	Environmental Geotechnical Hydrological Materials Structural Transportation Water resources	Geo-environmental Structural Transportation
Civil Engineering Master of Science	MS	Environmental Geotechnical Hydrological Materials Structural Transportation Water resources	Geo-environmental Structural Transportation
Computer Engineering Master of Engineering	MEngr	Coding, cryptography and information protection Communications and wireless networks Compilers and operating systems Computational science Networks Mobile computing Distributed systems System architecture Parallel processing Computer vision Robotics ICs, VLSI design, testing, CAD Signal, image and speech processing (and many more specialties)	Bioinformatics Parallel computing Reconfigurable computing Hardware/software codesign Asynchronous systems Embedded & microprocessor-based systems Wireless systems
Computer Engineering Master of Science	MS	Same as above	Same as above
Computer Science Undergraduate minor	Minor	Software engineering Algorithms	Software engineering Algorithms
Computer Science Bachelor of Science	BS	Artificial intelligence (many subareas) Software engineering (many subareas) Parallel computing Programming languages Cryptography Security (many subareas) Embedded systems Operating systems Theoretical computer science Computer graphics Database systems Networks Algorithms Bioinformatics	Parallel computing Embedded systems Computer graphics Artificial intelligence Security (networks) Algorithms Cryptography

Computer Science Master of Science	MS	Same as above	Same as above specializations, and also Bioinformatics
Construction Management Undergraduate minor	Minor	Same as below	Same as below
Construction Management Bachelor of Science	BS	Commercial Residential	Overall program encompasses all aspects and types of construction
Electrical Engineering Bachelor of Science	BS	Biomedical imaging Bioengineering Acoustics Communications and wireless networks Devices and processing Integrated circuit design Signals and systems Computer engineering Power engineering Systems and control Electromagnetics Optics and lasers Nanotechnology and quantum devices Remote sensing Semiconductor materials and devices Signal, image and speech processing (and many more specialties)	Computer engineering Integrated circuit design Power engineering Devices and processing Signals and systems Semiconductor materials and devices
Electrical Engineering Master of Engineering	MEngr	Same as above	Devices and processing Integrated circuit design Computer engineering Power engineering Communications and wireless networks Optics and lasers Nanotechnology and quantum devices Systems and control Semiconductor materials and devices
Electrical Engineering Master of Science	MS	Same as above	Same as above
Electrical and Computer Engineering Doctor of Philosophy	PhD	Same as above	Circuits and devices Signals and systems Computer engineering
Instructional and Performance Technology Master of Science	MS	Needs assessment Instructional design Job aids/EPSS Job specification	Needs assessment Instructional design Job aids/EPSS Evaluation

		Human factors/ergonomics Evaluation Mentoring/coaching Performance appraisal Incentive systems Communication systems Change management Performance consulting	Change management Performance consulting
Materials Science and Engineering Undergraduate minor	Minor	Same as below	Same as below
Materials Science and Engineering Bachelor of Science	BS	Metals Ceramics Biomaterials Electronic materials Nuclear materials Composites Polymers Materials characterization	Metals Ceramics Biomaterials Electronic materials Nuclear materials Materials characterization
Materials Science and Engineering Master of Engineering	MEngr	Interdisciplinary Microelectronics Mechanical engineering Chemistry Manufacturing Semiconductor process engineering Physics Environmental engineering Biomaterials Nuclear materials	Interdisciplinary Microelectronics Mechanical engineering Chemistry Manufacturing Semiconductor process engineering Physics Environmental engineering Biomaterials Nuclear materials
Materials Science and Engineering Master of Science	MS	Interdisciplinary (same as above)	Area of specialization depends on area of graduate research
Mechanical Engineering Bachelor of Science	BS	Energy systems Design methodology Mechatronics Solid mechanics Control systems Aeronautics Biomechanics	Energy systems Design methodology Mechatronics Solid mechanics Biomechanics
Mechanical Engineering Master of Engineering	MEngr	Same as above	Same as above
Mechanical Engineering Master of Science	MS	Same as above	Same as above
† high technology disciplines change rapidly †† specializations change, especially at the graduate level, along with faculty expertise			

III. Enrollment and Graduates – Last three years beginning with the current year (Current year is defined as the year the report is presented to the Board)

	Enrollment‡✧			Number of Graduates		
	Current Year 06-07	Previous Year 05-06	Previous Year 04-05	Current Year 06-07	Previous Year 05-06	Previous Year 04-05
Degree						
Civil Engineering – Minor	2	5	1		1	
Civil Engineering – BSCE	182	153	140		13	10
Civil Engineering – MEngr	5	5	1		5	6
Civil Engineering – MS	8	6				
Civil Engineering – MSE†	1	7	19			1
Computer Engineering – MEngr	3	2			1	
Computer Engineering – MS	8	8	2*		2	2
Computer Engineering – MSE†	3	7	15		3	3
Computer Science – Minor	31	25	17		6	
Computer Science – BS	237	240	235		16	22
Computer Science – MS	14	21	17		5	5
Construction Management – Minor	5	6	7		1	
Construction Management – BS	216	175	145		26	26
Electrical Engineering – BSEE	248	256	275		33	42
Electrical Engineering – MEngr	12	6	3*		2	1
Electrical Engineering – MS	22	19	5*			4
Electrical Engineering – MSE†	7	16	41		2	6
Electrical & Computer Engineering – PhD	5					
Engineering – Undeclared	102	95	78			
Instructional & Performance Technology – MS	145	149	169		40	43
Materials Science & Engineering – Minor	5	4	5			
Materials Science & Engineering – BSMSE	51	26	3		2	
Materials Science & Engr – MEngr	4	4	1*			1
Materials Science & Engr – MS	15	13	15		1	
Mechanical Engr – BSME	260	231	203		27	22
Mechanical Engr – MEngr		2	3*		2	2
Mechanical Engineering – MS	14		6			1
Mechanical Engineering – MSE†	4	9	19		1	1
Total	1609	1490	1411		189	198

‡ fall numbers unless otherwise indicated; ✧ enrollment numbers do not include interdisciplinary master's degree programs such as biomedical engineering; * denotes enrollments in spring 2005 – no fall enrollees; † denotes program being phased out

IV. Notable Accomplishments (limit to 5 items no greater than 300 words total):

- In less than ten years Boise State University faculty and staff, along with community and corporate partners, have built a nationally-renowned engineering college that provides students with access to 24 high quality degree options and provides Idaho businesses with excellent professionals.

- US News & World Report ranks the College 12th among the nation's best public, comprehensive engineering schools.

- The College has established a culture of success among students of all backgrounds, as evidenced by a consistent pass rates on the FE exam of nearly 90%, an average above 90th percentile routinely for computer science students on the Educational Testing Services Major Field Test, and national and regional honors and recognitions in academic and design competitions earned by students of all disciplines.

- Research labs and centers, representing a wide range of technologies, partnerships and funding agencies, demonstrate the College's breadth and emerging reputation as a contributor to the grand challenges of energy, human welfare, environment and information management. Some examples:
    - The College is a partner, along with Stanford, Harvard and other research universities, in two FAA Centers of Excellence. Research on emissions and cabin air quality benefit both Idaho travelers and people all around the world.
    - The Center for Environmental Sensing is a multi-disciplinary program, primarily funded by the EPA, developing Ion Mobility Spectrometer devices to monitor for compounds such as chemical warfare agents, explosives, and narcotics.
    - The Center for Orthopaedic and Biomechanics Research, a collaborative effort between engineering and kinesiology (College of Education) along with local clinicians, is conducting nationally recognized research on sports injuries among young athletes.
- The dynamic academic culture and vibrant entrepreneurial region has enabled Boise State University to recruit strong faculty leaders, such as Dean Cheryl Schrader, who received a 2005 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring.

V. Demonstrated Demand for Degree/Program (limit to 5 items no greater than 300 words total):

- The College of Engineering at Boise State University was created in direct response to growing demand for engineering professionals in southwest Idaho, to support the area's burgeoning technology enterprises such as Micron Technology, Hewlett Packard, Idaho Power and a host of start-up companies.

- Between fall 1997 – the official start of the College of Engineering – and fall 2006, enrollment in the college increased 145% from 656 to 1609 students.

- Boise State began offering three bachelor's level engineering programs (civil, mechanical and electrical) in 1996, a year before the official formation of the college. In response to requests from industry for engineers with specific training, such as semiconductor materials processing, and for engineers with advanced degrees, the College of Engineering at Boise State now offers 24 degrees, including 5 minors, 6 bachelor's degrees, 12 master's degrees and 1 Ph.D.

- Employment demand for graduates of Boise State's engineering programs is very high and most graduates are placed in Idaho. Additionally, demand is high for graduates of the bachelor's level program in construction management and master's level program in instructional and performance technology (IPT), both programs that are unique within the state. Construction management graduates typically receive multiple job offers, and IPT graduates serve in strategic positions within a number of Treasure Valley organizations and corporations and beyond. Even demand by industry for student interns exceeds supply of available students in many engineering disciplines.

- Boise State University is meeting the increasing demand for education among Idaho's fastest growing ethnic group – Hispanics. The percentage of Hispanic undergraduate students in engineering and computer science in fall 2005 was 6.1%, exceeding that of the university. The Hispanic population in Idaho, largely centered in communities within 20 to 100 miles of Boise, comprises 8.9% of the Idaho population; and 46% of Idaho's Hispanics are 19 years old or younger, creating a sizeable population for potential college education. Our Society of Hispanic Engineers student organization was recently named National Small Chapter of the Year.

VI. Unique Contribution to Idaho Residents—value added to the community and the state (limit to 5 items no greater than 300 words total):

- For many of our students, Boise State represents their only access to an engineering education. Many of our students live off-campus and work in the local community. The difference in lifetime earning, quality of life, and professional contributions between an engineer and non-college graduate is significant. This impacts the region and the state of Idaho on many levels, including tax revenue. Additionally, our graduate programs offer educational opportunities for practicing professionals to specialize and stay abreast of technological changes, and for businesses to retain these valuable employees. Since the Treasure Valley is second only to Silicon Valley in the percentage of electrical engineers and information scientists this is a substantial contribution.

- A strong emphasis on undergraduate research is one unique facet of the College. Undergraduate students are given the opportunity to conduct research more typical of graduate students at other universities. This educational advantage has enhanced our graduates' marketability substantially.

- Southwest Idaho has benefited from the infusion of $23.5 million in community support for programs and facilities and more than $27 million in research funding to the College since 1997 (funding total in federal pass-throughs such as NSF EPSCoR

and NIH INBRE includes only BSU College of Engineering portion). This funding has advanced the state of knowledge in specific technologies, including biomechanics, environmental sensors, wind energy, microelectronics, electronic packaging, biomaterials, novel memory materials, and parallel computing. Much of the research includes partnerships with other scientists, businesses, or educational institutions.

- Encouraging interest in technology careers is beneficial for young people's educational success and for the economic prosperity of Idaho. The College sponsors numerous programs that bring more than five thousand K-12 students to campus annually, including the Jason Project, e-Girls, Family Engineering Day, Idaho Engineering Science Camp, and Future City. College students participate in numerous service projects that benefit the community, working with the Idaho Botanical Gardens, Ducks Unlimited, Bogus Basin, ZooBoise, and the Discovery Center of Idaho.

- As the largest producer of graduates and largest generator of external funding per faculty, the College of Engineering at Boise State University is the most efficient and effective engineering college in the state.

VII. Areas of Commonalities with Degrees/Programs at other Idaho Colleges and Universities with Rationale as to Why (limit to 250 words).

Both University of Idaho and Idaho State University offer programs in civil engineering, computer science, electrical engineering and mechanical engineering. University of Idaho also offers computer engineering and materials science and engineering.

Because undergraduate engineering and computer science programs must satisfy rigorous accreditation criteria, similar foundational content exists among these programs. That said, each engineering field is not a "one size fits all" endeavor, but is comprised of a multitude of specialties and subspecialties, even at the undergraduate level. For example, Boise State's MSE and ECE departments share a strong focus on semiconductor processing to meet the needs of area employers. Specialties become even more distinct at the master's level, where students benefit from faculty expertise in particular areas. For example, the Boise State program and the UI civil engineering master's program complement one another. In Boise the UI program focuses on surface water, and does not have expertise in subsurface areas. Boise State has faculty who specialize in the subsurface, but not in surface water. Similarly Idaho State has an emphasis in nuclear engineering, while Boise State's materials science and engineering department contributes to nuclear research in the niche area of nuclear materials.

Perhaps the most compelling reason to have multiple engineering programs in Idaho is geographic. Regional universities 1) provide expanded access to engineering education to as many students who have the desire and aptitude to pursue these crucial majors, 2) provide continuing education for industry professionals so they can sharpen and advance their knowledge, 3) stimulate partnerships with area industry and government agencies, and 4) help market the region to new businesses. Boise State's engineering programs attract students who would not otherwise pursue postgraduate studies, even if such programs were offered at other Idaho institutions.

VIII. Relationship/Collaborations with Other Degrees/Programs within the Institution and How the Courses in the Program are used for other Degrees (limit to 250 words)

Engineering classes and collaborations are woven throughout the fabric of university curricula, programs and research at Boise State. College of Engineering faculty and students are involved in collaborative endeavors with counterparts from EVERY one of Boise State's eight other colleges – Applied Technology, Arts and Sciences, Business and Economics, Education, Graduate Studies, Health Sciences, Honors, and Social Sciences and Public Affairs. Some examples include:

- A class on entrepreneurship offered by the department of mechanical and biomedical engineering, the College of Business and the Honors College.
- Three undergraduate core classes for all majors, provided by the College of Engineering – The Ethical Dimensions of Technology, Energy for Society and Engineering for Humanity.
- Idaho's only certificate program in community and regional planning – a partnership that includes the construction management department as well as the College of Social Sciences and Public Affairs.
- A Public Health Disaster Preparedness Planning class offered by the department of civil engineering in conjunction with the health science and geophysics graduate programs.
- An Engineering for Educators class that involves education majors in the Introduction to Engineering class.
- The Center for Biomechanics and Orthopaedics Research – co-directed by a biomedical engineering faculty member and a kinesiology faculty member.
- The NIH-funded INBRE (Idea Network for Biomedical Research Excellence) that involves efforts in at least seven engineering and science departments.
- The Center for Environmental Sensing – an interdisciplinary team involving civil engineering, electrical and computer engineering, materials science and engineering, chemistry and biology departments.
- The New Product Development Laboratory, that in partnership with TechHelp has assisted over 100 Idaho companies.

IX. Summary of Findings from the most Recent Accreditation Report Including Commendations, Recommendations (also include date of last accreditation and when the next accreditation is due).

Accreditation Status of Undergraduate Programs in the College of Engineering at Boise State University				
Department	**Program**	**Date of Most Recent Accreditation**	**Findings**	**Next Accreditation Due**
Civil Engineering	Civil Engineering	2005	ABET accredited: Typical of civil engineering programs across the country, more emphasis needed on certain issues such as procurement of work; concern about low faculty salaries	2011
Computer Science	Computer Science	2003	ABET accredited: Improvement in assessment needed; financial mechanism needed for regular replacement of lab equipment; concern about low faculty salaries	2007
Construction Management	Construction Management	2004	ACCE accredited: Recognized dynamic leadership by advisory board and dean; weakness in comprehensive and integrated outcomes assessment plan and in faculty	2007

			salary equity	
Electrical and Computer Engineering	Electrical Engineering	2005	ABET accredited: Noted for high quality and dedicated faculty; commended for meeting needs of both traditional and nontraditional students; recommendations made to improve some assessment of outcomes, recruiting and alumni data collection; concern about low faculty salaries	2011
Materials Science and Engineering	Materials Science and Engineering	N/A	*Note: MSE graduated its first students in May 2006*	2007 (first accreditation visit scheduled in October 2006)
Mechanical and Biomedical Engineering	Mechanical Engineering	2005	ABET accredited: Strong mechanical engineering program; benefited from strong leadership and a good student body; recommended more funding for graduate assistants; concern about low faculty salaries	2011

X. Contribution of the Degree/Program to Economic Development in the Region, State, or the Governor's Science and Technology Initiative (limit 250 words):

"Education is the key to economic independence," as reported in "The Future is Now!" publication produced in 2005 by the Idaho State Board of Education. The report pointed out Idaho's low per capita college graduation rate (46th in the nation) and the connection to inadequate workforce preparedness. Correspondingly, the first two strategies of the Governor's Science and Technology Advisory Council are to:

- Build, attract and retain a highly skilled technical workforce.
- Invest in creating R&D excellence and promoting industry-university collaboration.

Located in Idaho's entrepreneurial and population center, the College of Engineering at Boise State University is positioned strategically and physically to contribute extensively to the advisory council's goals and to the educational and economic growth of Idaho. The Boise Metropolitan Area continues to experience exceptional growth in technology based enterprises, earning recent Top 10 national rankings for overall patents, high-tech output, business and career climate, livability, and engineers per capita.

Beyond mere location, Boise State engineering specializations are well positioned to help translate Idaho's four identified core competencies (Imaging, Power/Energy, Agriculture/Biosciences, and New Materials/Nanotechnology) into technology platforms and market niches. Numerous projects throughout the college support the core competencies – soil mechanics and transport of materials through the subsurface (Ag/Biosciences), wind energy research and a variety of mechanical engineering projects (Power/Energy), biomaterials characterization, shape memory alloys (New Materials/Nanotechnology), and optically scanned image degradation modeling (Imaging), just to name a few.

A 2004 economic impact report demonstrated that research projects and job creation at Boise State spur the creation of other jobs in the Ada/Canyon area, in addition to indirectly increasing spending on goods and services in the state. Simply put, the programs in the College keep Idaho students in Idaho.

XI. Describe how the Various Degrees/Programs or Specializations within the School/College were Built or will be Built on Existing Programs, if Applicable (limit to 250 words):

The civil, mechanical, and electrical engineering programs were built based on the pre-engineering programs that existed at Boise State prior to 1996. The construction management and instructional and performance technology program were existing programs that were incorporated into the new College of Engineering in 1997.

All additional programs have been created in response to demand from local industry, or based on research specializations, or in collaboration with other departments at Boise State University. Some examples:

- The materials science and engineering department, with significant support from Micron Technology, was created and added four programs in three years (a minor, a bachelor's degree and two master's) in response to demand in the memory device industry. The

new materials science and engineering department now has more than $5 million in funded research (including DARPA, NASA and NIH funding) and also leads the engineering disciplines in the percentage of women graduate students, with 40% women.

- Based on interest from area professionals along with collaboration by Boise State's geosciences, chemistry and biology departments, the civil engineering department will add a geo-environmental focused Ph.D. program.
- The biomedical engineering minor and plans for the biomedical engineering master's degree emerged in the past few years and reflects the unique focus and competency of mechanical engineering and materials science faculty members, along with significant interest from students and research-focused clinicians in the local medical community.

XII. Future Plans and Timelines with Rationale as to Why (limit to 250 words):

As a metropolitan research university of distinction, Boise State is poised to continue its role of equipping Idaho's citizenry as technologically adept participants and leaders. To realize this vision, Boise State will continue to advance the expertise and depth of its programs by adding PhD and master's degrees. Like the recent ECE PhD added at Boise State, the new programs will carve out specializations that contribute to the needs of southwest Idaho and the state. In creating these programs, Boise State is once again responding to strong demand by area business leaders, potential students and working professionals.

The Southwest Region Eight-Year Plan for Educational Program development proposes the following plans for new program implementation at the College of Engineering at Boise State University. All programs will be located in the Treasure Valley, unless otherwise specified.

2007-08: Biomedical Engineering, M.S.
Instructional and Performance Technology, Ph.D. (online)
Materials Science and Engineering, Ph.D.
2008-09: Mechanical Engineering, Ph.D.
Construction Management, M.S.
2009-10: Civil Engineering, Ph.D.
2010-11: Computer Science, Ph.D.

Additionally, Boise State will continue to add expertise that aligns with the region's economic interests, advances the state of knowledge in key fields, and stimulates private enterprise. For example, the Boise State Center for Materials Characterization, recently approved by the Idaho State Board of Education (8/2006), provides the organization and infrastructure to make various materials characterization tools available as a user facility for faculty and regional companies. With funding from recent NSF awards, the center will feature an analytical transmission electron microscope (TEM) and a multifunctional X-ray diffraction system, two pieces of equipment that represent extremely valuable resources for local industry.

XIII. Fiscal Year Revenues - Current year is defined as the year the report is presented to the Board

Revenue Received, Various Fiscal Years						
		Past Fiscal Year		Current Fiscal Year‡		Next Fiscal Year
Annual General Account/State Appropriation		6,751,300		6,197,300		
Endowment Funds (BSU Foundation)						
Revenue from Endowment Funds		89,200		Not Avail†		
Total Balance at Fiscal Year End		2,426,900		Not Avail†		
Student Fees		16,800		700		
Federal Appropriation		0		0		
Federal Grants & Contracts		2,754,600		849,100		
State Grants & Contracts		99,800		105,800		
Private Gifts, Grants & Contracts		1,485,700		440,400		
Sales & Serv of Educ Activities		0		0		
Sales & Serv of Aux Enterprises		0		0		
Other (please identify)						
Indirect Costs		413,700		Not Avail*		
Total, All Fund Sources		14,038,000		7,593,300		
Notes:						
This report displays revenue received during the fiscal year, not expenditures made.						
Round to nearest $100.00.						

‡ revenues received through August 31, 2006

† BSU Foundation does not have this information available at this time

* indirect cost revenue on current FY grant expenditures not yet booked by BSU Accounting Office

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Idaho State Board of Education Report
on
Commonalities and Differences among Colleges and Schools
within
Idaho's Public Higher Education Institutions

BACKGROUND

At the December 2005 Idaho State Board of Education meeting, the college and university presidents were asked to prepare a series of reports to assist the board in understanding the commonalities and differences among disciplinary colleges and schools within the public institutions of the state.

SCOPE OF WORK

The following reports will be provided at the regularly scheduled Board meetings.

School/College	Board Meeting
Engineering	October 2006
Education	February 2007
Business	June 2007
Health Sciences (selected areas TBA)	October 2007

PROCESS

The institutions will prepare a report based on the following template. Reports from the institutions will be reviewed and an executive summary will be prepared for Board review.

Date: 11 September 2006

Institution: Idaho State University

School/College/or program (s) within the disciplinary area to be reviewed:

College of Engineering

I. Brief History of College/School:

Idaho State University (ISU) has been serving the citizens of the State since 1901; in fact, two of the first four graduates in 1902 were Civil Engineers. In 1965, the BS in General Engineering and MS in Nuclear Science and Engineering were offered to meet the needs of the employees of the then National Reactor Testing Station (NRTS) and now designated the Idaho National Laboratory (INL). In 1985, the BS program was first accredited by the Accreditation Board for Engineering and Technology (ABET) and was continuously accredited until it was discontinued in 2005, after being superseded by separate BS degree programs. The College of Engineering was established in 1986, and during the next few years, MS programs in Measurement and Control Engineering and Environmental Engineering were developed, followed by the PhD program in Nuclear Science and Engineering and the establishment of the Measurement and Control Engineering Research Center.

In 1996, the Idaho State Board of Education (ISBOE) approved BS programs in Civil, Electrical, and Mechanical Engineering for ISU. A broad-based doctoral (PhD) program in Engineering and Applied Science was initiated in 1998 in collaboration with the ISU departments of Physics, Geosciences, and Mathematics. The BS programs in Civil, Electrical and Mechanical Engineering were first ABET accredited in 1999. Also in 1999, the Computer Science (CS) program was moved from the College of Business and the department of Mathematics in the College of Arts and Sciences to the College of Engineering. A BS program in Nuclear Engineering was started in 2004. After an initial ABET visit during the Fall of 2005, the BS program in Computer Science was accredited. From a modest beginning over a century ago, the Engineering program at ISU has grown to meet the evolving needs of southeastern Idaho, offering five BS and five MS programs and one PhD program. The new ISU President Arthur Vailas and new Engineering Dean Richard Jacobsen began work at ISU on July 1, 2006; shortly thereafter, the University administration emphasized that engineering programs would respond to a variety of current and emerging demands within the state and region, including ISU's high priority in nuclear science and engineering in partnership with the Idaho National Laboratory.

II. Degrees offered by school/college or program(s) within disciplinary area under review:

Degree name	Level	Specializations within the discipline (to reflect a national perspective)	Specializations offered within the degree at the institution
Undergraduate (Bachelor) Degrees			
BS in Civil Engineering	Bachelors	Civil Engineering	Civil Engineering
BS in Computer Science	Bachelors	Computer Science	Computer Science
BS in Electrical Engineering	Bachelors	Electrical Engineering	Electrical Engineering
BS in Mechanical Engineering	Bachelors	Mechanical Engineering	Mechanical Engineering
BS in Nuclear Engineering	Bachelors	Nuclear Engineering	Nuclear Engineering
Post Baccalaureate Certificate Program			
Certificate in Applied Nuclear Energy	Certificate	Applied Nuclear Energy	Applied Nuclear Energy
Graduate (MS and PhD) Degrees			
MS in Civil Engineering	Masters	Civil Engineering	Civil Engineering
MS in Environmental Engineering	Masters	Environmental Engineering	Environmental Engineering
MS in Measurement & Control Engineering	Masters	Measurement & Control Engineering	Measurement & Control Engineering
MS in Mechanical Engineering	Masters	Mechanical Engineering	Mechanical Engineering
MS in Nuclear Science & Engineering	Masters	Nuclear Science & Engineering	Nuclear Science & Engineering
PhD in Engineering & Applied Science	Doctoral	Engineering and Applied Science	All Engineering Disciplines; Physics; Mathematics and Geosciences (Subsurface sciences)

III. Enrollment and Graduates – Last three years beginning with the current year and the 2 previous years

	Enrollment			Number of Graduates		
Degree	Current Year 2005-06	Previous Year 2004-05	Previous Year 2003-04	Current Year 2005-06	Previous Year 2004-05	Previous Year 2003-04
Undergraduate (Bachelor) Degrees						
BS in Civil Engineering	53*	16	21	7	6	8
BS in Computer Science	83*	78	93	7	9	7
BS in Electrical Engineering	51*	25	25	9	4	9
BS in Mechanical Engineering	79*	35	48	23	11	18
BS in Nuclear Engineering	13*	NA**	NA**	NA**	NA**	NA**
Undecided Engineering	171*	319*	303	NA	NA	NA
Totals	450	473	490	46	30	42
Post-Baccalaureate Certificate Program						
Certificate in Applied Nuclear Energy	3	4	7	2	4	2
Graduate (MS and PhD) Degrees						
MS in Civil Engineering	7	1	NA	1	NA	NA
MS in Environmental Engineering	14	11	12	5	5	4
MS in Measurement & Control Engineering	17	18	17	7	4	3
MS in Mechanical Engineering	5	10	8	4	1	2
MS in Nuclear Science & Engineering	12	11	17	2	2	0
PhD in Engineering & Applied Science	34	37	38	3	1	3
Totals	89	88	92	22	13	12

* Between 2004-05 and 2005-06, the method of accounting for undeclared disciplinary students was changed; many students previously designated “undecided” declared their majors. The total number of students has remained largely consistent from year to year.

** New program established in 2004.

The recent decrease in enrollment is attributed to a) drop in college enrollment due to strong economic conditions—a national trend, b) the opening of 4-year engineering programs at BYI-Idaho in Rexburg, and c) the stricter immigration rules after the 9/11/2001 incident, which affect graduate students from outside the USA.

IV. Notable Accomplishments.

The ISU College of Engineering has a long history of accomplishment in educating engineering students, establishing research efforts, and collaborating with regional industries, all aimed at serving the ever-developing needs of southeastern Idaho, the larger state, and emerging regional, national, and global needs. The College's most notable accomplishments include the following:

1) Establishment in 1965 of the Nuclear Engineering program in cooperation with the University of Idaho in support of the mission of what is now called the Idaho National Laboratory, Idaho Falls. ISU's College of Engineering is the only Idaho institution offering together BS and MS programs and doctoral studies in Nuclear Science and Engineering.

2) Establishment in 1967 of the only non-federally owned nuclear reactor in the State of Idaho. The college has maintained the Nuclear Regulatory Commission (NRC) license to date, and the reactor supports current education and research.

3) Development and expansion of the Engineering program from one BS program to 5 BS, 5 MS, 1 Post-Baccalaureate Certificate, and 1 PhD program. Program accreditation through ABET has been maintained since 1985. This evolving program development includes the establishment in 2004 of a "2+2 Nuclear Engineering Scholarship Program," with Boise State University and the University of Idaho to cater to the needs of the new mission in nuclear science and engineering at the Idaho National Laboratory.

4) Establishment in 1993 of an interdisciplinary Measurement and Control Engineering Research Center (MCERC), in 2003, the Institute of Nuclear Science and Engineering (INSE) and cooperation in the establishment of the INL Center for Advanced Energy Studies (CAES). The establishment of these centers has either followed from or has enabled increased research funding from INL, the National Science Foundation, the Department of Defense, the Department of Energy, EPSCoR, etc.

5) Two Memoranda of Understanding (MoUs) were signed by Christine King, President and CEO of AMI Semiconductor Inc. (AMI-S), Pocatello and Dr. Richard Bowen, former President of Idaho State University, on 22 July 2002 to cover the period up to 2004 and on 4 March 2004 to cover the period up to 2006 to "develop a closer working relationship through educational and workplace cooperation" involving College of Engineering and other colleges on the campus. The various items for this effort include: internships, part-time employment, research, equipment donations, class participation, cooperative programs, resource cooperation, advisory board representation, etc. Discussions to continue the memoranda for another two-year period are underway.

V. Demonstrated demand for degree/program.

ISU Engineering programs have enjoyed consistent demand over time, especially after the introduction of discipline-specific degree programs in Civil, Electrical, Mechanical, Nuclear Engineering, and Computer Science. The demand for the College's degree programs is also demonstrated by the following:

1) Demand for employees who are graduates from accredited engineering programs in all engineering disciplines reflects local and regional needs as articulated by the College's Engineering Advisory Council (EAC), comprised of practicing professional engineers from throughout the region. Engineering programs in all disciplines remain consistently subscribed to by healthy numbers of students.

2) Demand for graduate (MS & PhD) programs in Engineering at ISU is increasing consistently. The ISU Office of Graduate Studies has fielded approximately 60 inquiries for information on engineering graduate programs in the last six months, and the Associate Dean for Graduate Studies in the College of Engineering as well as the College's faculty, have together fielded over 100 inquiries during a similar period.

3) College of Engineering maintains connections with local, regional, national, and global industries represented by AMI-Semiconductor, Micron, Premier Technologies, Camas Industries, Portneuf Medical Center, the City of Pocatello, and connections with the Idaho National Laboratory, as well as connections with local/regional consulting firms. In sum, these connections underscore the fundamental vitality of the demand for the College's programs.

4) Computer Science is a crucial element in any contemporary engineering school. The CS degree program offered at ISU provides students with opportunities to not only specialize in CS, but to build their foundation for pursuing advanced studies in other science and engineering areas. Further, the University of Idaho has requested that ISU assume responsibility for the undergraduate Computer Science (CS) program in Idaho Falls during the current (2006-07) academic year. Pending action by the University of Idaho and SBOE approval, this will be another opportunity for ISU to serve the Idaho Falls area and will increase ISU CS enrollments significantly.

5) Placement of the College of Engineering's graduates at both the undergraduate and graduate level are consistently high. While comprehensive data is currently unavailable, the College estimates that 80-85% of its graduates remain in Idaho upon graduation.

VI. Unique Contribution to Idaho Residents—value added to the community and the state.

Southeastern Idaho has the second largest regional population base in the state with over 150,000 people. The ISU College of Engineering serves large numbers of nontraditional students with its programs. These are often students who are born, raised and have families and jobs in the local area and who would have a difficult time relocating to pursue an engineering degree elsewhere and in particular to other universities in Idaho like Boise State University (about 250 miles away) and University of Idaho (about 550 miles away). In addition, the federal Department of Energy has designated the Idaho National Laboratory the lead national laboratory for nuclear energy studies; the unique programmatic offerings of ISU's College of Engineering bring these national needs together with those of students, industry, and government in our region. Unique and specific contributions of the College to Idaho residents include the following:

1) Providing unique educational and employment opportunities in **Nuclear Science and Engineering** (NSE). ISU's College of Engineering is the only institution in the state of Idaho offering BS, MS, and PhD programs in Nuclear Science and Engineering.

2) Providing unique graduate educational and employment opportunities in the area of **Measurement and Control Engineering (MCE) and Environmental Engineering (ENVE)**. The Measurement and Control Engineering Research Center (MCERC) is one of the four initial, state-recognized research centers started in 1993 and has collaborated with the Idaho National Laboratory on a wide range of research projects. The center has a new renovated home at the Engineering Research Complex. Further, the MCERC was awarded a federal grant of $842,000 by the Department of Defense to conduct advanced research on Intelligent Prosthetic Hand to help those who lost limbs either in combat or non-combat operations.

3) Providing a full range of undergraduate and graduate **educational** opportunities in Engineering and Computer Science for the residents of southeastern Idaho.

4) Meeting the **employment** needs for engineers and scientists in southeastern Idaho and the state, as evidenced by the placement of the College's graduates at the Idaho National Laboratory, AMI-Semiconductor and Simplot in Pocatello, Power Engineers in Hailey, Idaho Power, Micron in Boise, and the Idaho Dept. of Environmental Quality (DEQ), among others.

5) A strong Emphasis in Stimulating Interest in **Science and Engineering among area High School and Grade School Students**: College of Engineering faculty and students have played a unique role in helping obtain federal funding ($1.8M for 3 years, through the NSF-funded GK-12 Project) and running programs for students in K-12 classes throughout southeastern Idaho. Notable accomplishments: Area high school successes in the For Inspiration and Recognition of Science and Technology (FIRST) Robotics competition; stimulation of grade school students' interest in Science, Technology, Engineering and Mathematics (STEM) through Lego League participation, and sponsorship of the School District 25 Gifted and Talented Program and the national MathCounts competition. Tau Beta Pi members have also served as math/science tutors to area middle schools. Faculty are also involved in the ISU American Indian Task Force, to promote and retain American Indian students in higher education. Finally, the College has a long tradition of inviting area high school and grade school students to various facilities such as laboratories, class rooms, etc. within the College of Engineering to stimulate interest in science, engineering and technology.

VII. Areas of commonalities with degrees/programs at other Idaho colleges and universities with rationale as to why.

While ISU's College of Engineering programs focus on serving unique national and regional needs, the College's programs share core commonalities with the other colleges in the state, at the undergraduate and Masters levels focused on the foundational disciplines in Engineering. ISU's College of Engineering currently offers the following degrees in common with both the University of Idaho and Boise State University:

- Bachelor of Science degree programs in Civil Engineering, Computer Science, Electrical Engineering, and Mechanical Engineering.

- Master of Science degree programs in Civil Engineering, Environmental Engineering, and Mechanical Engineering.

All ISU engineering programs share a common engineering core as the foundation for building more specialized knowledge in the specific disciplines of Civil, Electrical, Mechanical, and Nuclear Engineering. The College's graduates have a broad-based engineering education well suited for the project management and other engineering jobs that are commonly found in this region of the state including those at the Idaho National Laboratory. This common foundation serves the needs of the unique undergraduate and graduate degrees in nuclear science and engineering and in Measurement and Control Engineering and the PhD program in Engineering and Applied Science offered at ISU, as well as the needs of the specialized and unique research centers affiliated with ISU's College of Engineering. These research centers include the interdisciplinary Measurement and Control Engineering Research Center (MCERC), and the Institute of Nuclear Science and Engineering, started in 2004. Following the award of the INL management contract to Battelle Engergy Alliance in February 2005, the Center for Advanced Energy Studies (CAES) was established to foster research and education collaboration in nuclear science and engineering and energy among the INL and the three Idaho universities and the Idaho National Laboratory.

The common programs at the Idaho universities located in three distinct locations provide opportunities for faculty and student to work together in research on problems of state-wide importance.

VIII. Relationship/collaborations with other degrees/programs within the institution and how the courses in the program are used for other degrees.

The College of Engineering programs are professional programs and do not typically offer courses that serve curricular needs in other colleges/programs, as is often the case in other disciplines such as mathematics, physics, chemistry, whose programs offer the courses taken by all lower-division engineering students. However, the College of Engineering has a longstanding tradition of collaboration with other science, technology, engineering, and mathematics (STEM) programs across campus. Notable examples of such collaborations include the following:

1) At the BS Level — the Computer Science (CS) program offers CS 181, Computer Science and Programming to support CS needs in other programs across campus and actively collaborates with the Mathematics Department in the College of Arts and Sciences and the Computer Information Systems Department in the College of Business on course development and review. The Civil Engineering (CE) program also offers a range of applicable courses to the Geosciences Department, as determined by their programmatic needs.

2) At the MS level — The Physics and Chemistry departments in the College of Arts and Sciences and the Department of Pharmaceutical Sciences in the College of Pharmacy collaborate with the College of Engineering to offer the Measurement and Control Engineering MS program. The College also collaborates with the Biology, Chemistry, and Geosciences departments in offering the Environmental Engineering MS program, and the Nuclear Science and Engineering MS program includes collaborative efforts with the Health Physics program in the Physics Department in the College of Arts and Sciences.

3) At the PhD level — The PhD degree program in Engineering and Applied Science is offered in the College of Engineering with collaboration from the departments of Physics, Geosciences, and Mathematics in the College of Arts and Sciences. Further, the College also shares joint supervision, committee assignments, etc. for PhD students in the Department of Pharmaceutical Sciences in the College of Pharmacy, Dept. of Biological Sciences in the College of Arts and Sciences, and the Institute of Rural Health in the College of Health Professions.

4) At the Research level — The research centers associated with the College of Engineering, such as the Measurement and Control Engineering Research Center (MCERC), the Institute of Nuclear Science and Engineering (INSE), and the Center for Motion Analysis and Biomechanics collaborate with the Idaho Accelerator Center, the Physics Department, the College of Technology, the ISU Biomedical Research Institute (IBRI), the Institute of Rural Health, the Biology Department, and the Department of Pharmaceutical Sciences in the College of Pharmacy.

5) The nuclear reactor and subcritical assembly facilities housed in the College of Engineering have been used to support educational and research programs in Pharmacy, Biological Sciences, Geosciences, Physics, and Health Physics.

IX. Summary of findings from the most recent accreditation report including commendations, recommendations. Also include date of last accreditation and when the next accreditation is due.

The BS program in General Engineering was first accredited in 1985 by the Accreditation Board for Engineering and Technology (ABET) and was continuously accredited until 2005, when the program was superseded by the three programs in Civil, Electrical, and Mechanical engineering. The three programs in Civil, Electrical and Mechanical Engineering were accredited initially by ABET in 1999, and the Computer Science program was recently accredited for the first time for graduates in 2004 and later. The Nuclear Engineering program will have its initial accreditation review in 2007.

The College's programs in Civil, Electrical, and Mechanical engineering are accredited by ABET through 30 September, 2008. The last ABET accreditation visit was during October 2005. Specific details of the visit remain confidential, according to ABET accreditation policy (see ABET Appendix Item). Continued accreditation of the engineering programs beyond 2008 is expected.

X. Contribution of the degree/program to economic development in the region, state, or the Governor's Science and Technology Initiative.

The College of Engineering contributes consistently and significantly to economic development throughout southeastern Idaho and the larger region. Specific contributions include the following:

1) The active collaborations between the College of Engineering with the Idaho National Laboratory (INL) in terms of research contracts ($4,836,921 from 1992-present) resulted in enhancing the economic impacts of INL both locally and regionally, as shown by the following selected examples:

    a) Advanced Welding Control Technology — USDOE/INEL — $615,000
    b) Laser Separation of Isotopes for Nuclear Medicine — INEL Consortium — $330,000
    c) Water Hammer Issue for Emergency Core Cooling — USDOE — $288,547
    d) Advanced Fuel Cycle Research and Training — USDOE — $988,000

2) The College's collaborations with local, regional, and global companies such as AMI-Semiconductor enhance the economic impacts these companies have throughout the state and region, at both the individual and governmental levels. The opportunities for these employees to collaborate with the College of Engineering as adjunct faculty drives the integration of new knowledge with industrial practices throughout the region. The potential also exists for significant technology transfer through patent and licensing of ISU-developed technologies.

3) The College's educational and research programs supply a steady stream of engineers to meet the research and application needs of INL, Simplot, Idaho Power, Micron, Power Engineers, L&K, Walker Engineering, and a range of other companies throughout the region. The College's educational and research programs also supply engineers to meet the needs of governmental agencies throughout the region, such as the Idaho Department of Environmental Quality.

4) The College has worked to generate and sustain interest in Science, Technology, Engineering, and Math (STEM) fields in secondary schools throughout the region, as shown particularly through the College's highly successful efforts under the National Science Foundation-funded GK-12 Fellowship Program in which the College and its faculty are instrumental. College programs under this program have proven successful both in generating supporting funds

from community and industry sources and in increasing numbers of area students participating in the programs. College faculty are also involved with the National Science Foundation scholarship program to promote engineering, computer science, and mathematics for students throughout southeastern Idaho.

5) One of the College's adjunct faculty members served on the initial Governor's Science and Technology Initiative committee.

XI. Describe how the various degrees/programs or specializations within the school/college were built or will be built on existing programs, if applicable.

1) ISU College of Engineering has grown in a very unique way from one BS program in General Engineering to 5 BS, 5 MS, 1 post-Baccalaureate Certificate, and 1 PhD program. Based on the interest of the students and demand by regional industries, BS and MS programs have been introduced. Some of the programs (BS, MS, PhD) and activities (MCERC) are unique to the ISU College of Engineering.

2) The College plans to start a BS program in Computer Engineering and MS programs in Computer Science and Electrical Engineering which are based on the strengths of existing programs and faculty in Electrical Engineering and Computer Science.

3) The College plans to start an MS program in Biomedical Engineering based on
   a. ISU's mission in health/medical professions,
   b. the expertise already available within the MCERC, and
   c. existing collaborations between the Department of Pharmaceutical Sciences in the College of Pharmacy, the Biological Sciences, and Chemistry departments, and the Institute of Rural Health.

XII. Future plans and timelines with rationale as to why:

In addition to the items mentioned previously in item XI, the following are the additional programs as shown in the College Eight-Year Plan.

2006-07

1) MS Emphasis in Nuclear Applications for Medicine: The development of advanced diagnostic tools and disease treatment modalities is a prime field, with great demand. ISU, with both its health mission and its nuclear science and engineering mission, has an opportunity to better serve the state and nation by formalizing its past efforts and creating a masters degree emphasis that would include both the Nuclear Engineering graduate program and the Measurement and Control Engineering MS program.

2) Completion of the second phase (already in the budget for this year) of the renovation of the facility for the Measurement and Control Engineering Research Center (MCERC).

2007-08

3) **MS in Biomedical Engineering**: During the recent years, the faculty at the College of Engineering have been involved in teaching and research in biomedical related fields such as nuclear medicine, imaging, myoelectric signals, intelligent prosthetics, etc. and is now in a position to plan to offer an MS in Biomedical Engineering.

4) **MS in Computer Science:** The BS in Computer Science is now accredited by ABET. The program now has four faculty with training and background in the field. A sound MS program

built upon the normal faculty responsibilities for research activity would feed further development of the BS program. The College proposes to establish such an MS program as soon as funds are available to provide for the one additional faculty that would be needed. Students with advanced degrees in Computer Science and related fields are more likely than BS graduates to be accepted for employment at the INL, given its R&D mission.

5) **BS & MS in Computer Engineering:** There is cyclic demand from students and industry for a degree in Computer Engineering, nominally equivalent to the demand for either Electrical Engineering or Computer Science. ISU currently has both of the latter degrees. Computer Engineering degrees will include elements of the existing Computer Science and Electrical Engineering programs.

6) Proposal for the third phase of the renovation of the facility for the Measurement and Control Engineering Research Center (MCERC).

2008-09

7) **BS in Manufacturing Engineering Technology** jointly with the College of Technology: This program is in the current Eight-Year Plan. It is proposed that this potential program be examined to determine the feasibility of implementation in the 2008-2009 budget year.

2009-2010

8) **MS Emphasis in Nano-technology:** This is an emerging field in engineering with potential applications in a variety of fields. Several of the College's faculty are engaged in current research activities in this field.

XIII. Fiscal Year Revenues - Current year is defined as the year the report is presented to the Board

Revenue Received, Various Fiscal Years						
		Past Fiscal Year($)		Current Fiscal Year($)		Next Fiscal Year($)
		2004-05		2005-06		2006-07
Annual General Account/State Appropriation		2,399,000		2,616,100		2,994,100
Revenue from Endowment Funds						
Student Fees		1,700		3,800		---
Federal Appropriation		---		---		---
Federal Grants & Contracts		1,194,200		1,295,000		---
State Grants & Contracts		51,400		34,600		---
Private Gifts, Grants & Contracts*		182,900		379,000		---
Sales & Serv of Educ Activities		---		---		---
Sales & Serv of Aux Enterprises		---		---		---
Other (please identify)**				130,000		150,000
Indirect Costs		24,700		23,400		---
Total, All Fund Sources		3,853,900		4,482,000		3,144,100
Notes:						
This report displays revenue received during the fiscal year, not expenditures made.						
Round to nearest $100.00.						

* Includes donations and private grants and contracts
** State-funded renovations for Measurement and Control Engineering Research Center (MCERC)

ABET Appendix Item

ABET Accreditation Policies Information (from current ABET accreditation manual)

19 2006-2007 Accreditation Policy and Procedure Manual

II.L.5. Information on a program published for students, prospective students, and the general public should provide sufficient definition of the program to show that it meets the appropriate ABET accreditation criteria. For example, if some fraction of the total elective courses must be taken in one curricular area in order for the criteria to be met, this requirement should be published, even though adequate counseling of students by faculty members may be shown to achieve the same objective.

II.L.6. College catalogs and similar publications must clearly indicate the programs accredited by the Commissions of ABET as separate and distinct from any other programs or kinds of accreditation. No implication should be made in any listing that all programs are accredited because of an institution's regional or institutional accreditation. Accredited programs should be specifically identified as "accredited by the _____ Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone: (410) 347-7700."

II.L.7. If an institution offers a non-accredited program at the same level in the same field as a program that is accredited by a Commission of ABET, the institution must indicate in the descriptions of its programs that are made available to the public that the non-accredited program is not accredited by a Commission of ABET.

II.L.8. Caution and discretion must be exercised by institutions in all publications and references to avoid ambiguity or confusion among engineering, engineering technology, computing, and applied science specialties. Where confusion exists, the institution must take positive steps in its publications and other media to help the public distinguish between engineering, technology, computing, and applied science programs.

II.L.9. If accreditation is withdrawn or discontinued, the institution may no longer refer to the program as being accredited.

II.L.10. ABET will publish a list of accredited programs only. Information as to whether a program or institution not on the accredited list had been under consideration by one of the Commissions will not be made available except to the appropriate officials of the institution in question.

II.L.11. The institution must make a public correction if misleading or incorrect information is released regarding the items addressed in Section II.L.

SBOE Assignment – Commonalities & Differences among Colleges & Schools

Date: **9 September 2006**

Institution: **University of Idaho**

College: **Engineering**

I. Brief History of the College of Engineering at UI

The UI College of Engineering (COE) has its origins in the Morrill Act of 1862, which provided for the organization of land-grant colleges in every state. In January 1889, a Territorial Act was passed creating the University of Idaho. The first faculty member, John E. Ostrander, was professor of Civil Engineering and Mechanic Arts. The first student was a Civil Engineering student. Of the four members of the first graduating class, two were civil engineers. The engineering program was based in the College of Applied Science until 1907 when Idaho's College of Engineering was established. In 1911 official action by the Regents created the COE as it is known today. Programs recognized by the Board of Regents in 1911 were civil engineering, electrical engineering, and mining engineering. Mining engineering together with metallurgy and geology were re-organized as a School of Mines in 1917 but returned to the College of Engineering in 2002.

Although civil engineering was the first engineering program at the University of Idaho, other departments were established soon afterwards, electrical engineering and mechanical engineering in 1901, chemical engineering in 1907 and agricultural engineering in 1910. An engineering graduate program was created in Idaho Falls to serve the Idaho National Laboratory in 1954 and UI Boise Engineering in 1988. Engineering Outreach (EO), a graduate engineering program available to off-campus students, was established in 1973 to meet the needs of Idaho industry by providing technical courses at a distance using a variety of technological delivery systems.

II. Degrees Offered by College of Engineering (UI)

Degree Name	Level	Specializations within the discipline (to reflect a national perspective)	Specializations offered within the degree at the institution
Biological & Agricultural Engineering	BS, ME, MS, PhD	Agricultural Engineering, Biological Engineering	Agricultural Engineering, BioSystems Engineering
Civil Engineering	BS, ME, MS, PhD	Civil Engineering,	Civil Engineering
Chemical Engineering	BS, ME, MS, PhD	Chemical Engineering	Chemical Engineering
Computer Engineering	BS, ME, MS	Computer Engineering, Software Engineering	Computer Engineering
Computer Science	BS, MS, PhD	Computer Science, Software, Computing, Information Systems	Computer Science
Electrical Engineering	BS, ME, MS, PhD	Electrical Engineering, Electronic Engineering	Electrical Engineering
Engineering Management	ME	Engineering Management	Engineering Management
Environmental Engineering	ME, MS	Environmental Engineering, Sanitary Engineering	Environmental Engineering
Geological Engineering	MS	Geological Engineering	Geological Engineering
Mechanical Engineering	BS, ME, MS, PhD	Mechanical Engineering	Mechanical Engineering
Materials Science & Engineering	BS, MS, PhD	Material Engineering, Metallurgical, Engineering, Polymer Engineering	Material Science and Engineering
Metallurgical Engineering	BS, MS, PhD	Material Engineering, Metallurgical, Engineering,	Metallurgical Engineering
Mining Engineering	MS, PhD	Mining Engineering	Mining Engineering
Nuclear Engineering	ME, PhD	Nuclear Engineering, Radiological Engineering	
Systems Engineering	ME	Systems Engineering	Systems Engineering

III. Enrollment and Graduates (UI)

Degrees	Enrollments[1]			Number of Graduates		
	2006-2007	2005-2006	2004-2005	2006-2007	2005-2006	2004-2005
Bachelor of Science						
Biol & Ag Engr	68	62	73	N/A	12	14
Chemical Engr	119	120	122	N/A	14	13
Civil Engr	241	224	201	N/A	29	13
Computer Engr	93	114	148	N/A	11	22
Computer Science	215	261	306	N/A	38	38
Electrical Engr	184	223	240	N/A	59	36
Geological Engr	1	2	2	N/A	0	0
Mechanical Engr	364	386	402	N/A	67	62
Materials Sci & Engr	83	79	51	N/A	5	3
Metallurgical Engr	29	51	54	N/A	9	5
Mining Engr	0	1	5	N/A	0	0
Undeclared	15	15	11	N/A	0	0
Total B.S.	**1412**	**1538**	**1615**	N/A	**244**	**206**
Master of Science						
Biol & Agric Engr	5	8	8	N/A	2	1
Chemical Engr	3	5	11	N/A	1	8
Civil Engr	27	28	33	N/A	9	3
Computer Engr	6	8	9	N/A	2	1
Computer Science	15	26	42	N/A	14	19
Electrical Engr	56	57	76	N/A	14	11
Environmental Engr	1	1	1	N/A	1	0
Mechanical Engr	33	34	36	N/A	14	12
Materials Sci & Engr	12	15	11	N/A	4	3
Metallurgical Engr	0	0	3	N/A	0	1
Mining Engr	0	0	1	N/A	1	1
Geological Engr	6	10	10	N/A	1	3
Nuclear Engr	0	0	0	N/A	0	0
Total MS	**164**	**192**	**241**	N/A	**63**	**63**
Master of Engineering						
Biol & Ag Engr	3	3	2	N/A	0	0
Chemical Engr	2	3	4	N/A	1	1
Civil Engr	28	32	33	N/A	14	8
Computer Engr	3	3	5	N/A	2	2
Electrical Engr	33	40	35	N/A	23	16
Mechanical Engr	18	23	21	N/A	5	9
Geological Engr	0	0	0	N/A	0	0
Nuclear Engr	1	0	0	N/A	0	0
Engineering Mgmt	26	27	28	N/A	3	4
Environmental Engr	0	0	2	N/A	0	0
Systems Engr	0	1	1	N/A	3	0
Total M Engineering	**114**	**132**	**131**	N/A	**51**	**40**

Enrollment and graduates table continued on page 5.

III. Enrollment and Graduates (UI) *(continued)*

Degrees	Enrollments[1]			Number of Graduates		
	2006-2007	2005-2006	2004-2005	2006-2007	2005-2006	2004-2005
Ph.D.						
Biol & Ag Engr	7	9	6	N/A	1	0
Chemical Engr	2	2	4	N/A	2	0
Civil Engr	11	13	15	N/A	2	2
Computer Science	25	32	33	N/A	2	3
Electrical Engr	21	31	28	N/A	2	2
Mechanical Engr	5	9	10	N/A	2	2
Materials Sci & Engr	7	9	9	N/A	0	3
Mining Engr – Metallurgy	1	2	3	N/A	1	0
Nuclear Engr	2	0	0		0	0
Total Ph.D.	**81**	**107**	**108**	N/A	**12**	**12**
Total[1]	**1771**	**1969**	**2095**	N/A	**370**	**321**

Total[2]	**1532**	**1655**	**1785**	**N/A**	**N/A**	**N/A**

[1] Tenth-day, fall semester, primary and secondary undergraduate majors, MS, M Engr, and Ph.D.

[2] Total adjusted to represent only primary undergraduate majors, MS, M Engr, and Ph.D.

Enrollment and Graduates through Engineering Outreach (UI)

Degrees	Enrollments[1]			Number of Graduates[2]		
	2006-2007	2005-2006	2004-2005	2006-2007	2005-2006	2004-2005
Master of Science						
Biol & Agric Engr	0	1	1	N/A	1	0
Chemical Engr	0	0	1	N/A	0	0
Civil Engr	2	1	0	N/A	1	0
Computer Engr	1	0	0	N/A	0	0
Computer Science	3	4	11	N/A	0	2
Electrical Engr	18	12	20	N/A	3	2
Environmental Engr	0	0	0	N/A	0	0
Mechanical Engr	6	4	4	N/A	1	0
Materials Sci & Engr	0	0	0	N/A	0	1
Metallurgical Engr	0	0	2	N/A	0	0
Mining Engr	0	0	0	N/A	1	0
Geological Engr	5	9	8	N/A	1	2
Nuclear Engr	0	0	0	N/A	0	0
Total MS	**35**	**31**	**47**	N/A	**8**	**7**
Master of Engineering						
Biol & Ag Engr	2	2	1	N/A	0	0
Chemical Engr	0	0	0	N/A	0	0
Civil Engr	19	21	25	N/A	11	2
Computer Engr	3	2	3	N/A	0	0
Electrical Engr	27	29	28	N/A	12	7
Degrees	**Enrollments[1]**			**Number of Graduates[2]**		
	2006-2007	**2005-2006**	**2004-2005**	**2006-2007**	**2005-2006**	**2004-2005**

Mechanical Engr	16	17	15	N/A	2	7
Geological Engr	0	0	0	N/A	0	0
Nuclear Engr	0	0	0	N/A	0	0
Engineering Mgmt	19	21	17	N/A	3	4
Environmental Engr	0	0	0	N/A	0	0
Systems Engr	0	0	0	N/A	0	0
Total M Engineering	**86**	**92**	**89**	N/A	**28**	**20**

Ph.D.						
Biol & Ag Engr	0	0	1	N/A	0	0
Chemical Engr	0	0	0	N/A	0	0
Civil Engr	0	1	0	N/A	0	0
Computer Science	4	6	9	N/A	2	1
Electrical Engr	7	12	10	N/A	1	1
Mechanical Engr	2	3	1	N/A	0	2
Materials Sci & Engr	0	1	0	N/A	0	0
Mining Engr – Metallurgy	0	0	0	N/A	1	0
Nuclear Engr	0	0	0		0	0
Total Ph.D.	**13**	**23**	**21**	N/A	**4**	**4**
Total	**134**	**146**	**157**	N/A	**40**	**31**

[1] Tenth-day, fall semester, primary undergraduate majors, MS, M Engr, and PhD
[2] Graduates who took at least one course through the Engineering Outreach Program

IV. Notable Accomplishments (UI)

A student, Chelan Pedrow, has designed a dynamic prosthesis to replace the leg of a child and that would adapt as the child grows. She works with a Physicians for Peace team and has visited Iraq and China to learn about designing and building prostheses.

An engineering professor is the lead researcher in a university strategic initiative focusing on waters of the west. The project will create an interdisciplinary water resources program composed of three distinct, but overlapping, tracks: Engineering and Science; Science and Management; and Law, Policy and Management. Both the research and education will be rooted in an experimental, case study based approach that will allow the program to meet the specific needs of those in Idaho, across the nation, and worldwide.

National Institute of Advanced Transportation Technologies (NIATT) is well established and continues to compete for funds at the national level. The U.S. Department of Transportation's (DOT's) Research and Innovative Technology Administration (RITA) recently selected UI as one of ten Tier I University Transportation Centers. NIATT engages student involvement on both the undergraduate and graduate levels in areas related to clean vehicle technology, traffic operations and control, and transportation infrastructure.

The Ecohydraulics Research Center (ERC), located in the UI Water Center Building, was established to foster collaborative interdisciplinary education and research efforts at the interface between hydraulic engineering, hydrology, and ecology. The research center has gained national and international prominence and continues to attract students and visiting researchers from all over the world.

The Center for Advanced Microelectronics Biomolecular Research (CAMBR) has developed three microprocessors for NASA test satellites for controlling and running the satellites and has successfully completed their mission in June 2006. NASA Jet Propulsion Laboratory recently appointed Professor Touraj Assefi to its Technology Advisory Board.

V. Demonstrated Demand for Degree (UI) – By Program

The **Biological & Agriculture Engineering** undergraduate enrollment has averaged 56.2 since 2001, with a high of 63 and a low of 47. During this period, we had 49 students receive B.S. degrees in engineering and 39% of these students have been women, one of the highest proportions in the College of Engineering. For 2005-06, in addition to 51 undergraduates, BAE served 19 graduate students.

BAE offers an excellent source of engineering education and knowledge in the fields of agriculture and biological sciences, and is widely recognized as such by the public and its peers due to the success of the graduates and extension clientele, and the significance and usefulness of the research. BAE students frequently take advantage of internships opportunities. They have worked hard with companies such as Potlatch Corp., Walt Disney World, and Scafco, but they also have worked in research laboratories at other universities such as Luea University of Technology in Sweden, NASA-Glenn Research Center, and the University of Washington Medical Center.

Exit interviews with graduating seniors show that over half of the B.S. graduates go on to graduate school. This includes institutions such as the University of Idaho, Cornell University, Iowa State University, Oregon State University, Michigan State University, University of California-Davis, and Arizona State University. Those students who choose to enter engineering practice are aggressively recruited by companies and government agencies both within Idaho and across the country.

Employers of BAE graduates include the US Dept. of Environmental Quality, Scafco Corporation, Idaho Dept. of Water Resources, William Bolthouse Farms, Southern Nuclear Operating Company, National Safe Skies Alliance, State of Idaho, Advanced Welding Co., Coeur d'Alene Tribe, Kress Land & Cattle Co., US Military, Idaho National Laboratory, AMI Semiconductor, Bechtel BBWI, GK Machine, Sanyo Corporation, Terracon, Agilent Technologies, and Fer-Tech to name a few.

Most students have employment by graduation and nearly all students are employed in a **chemical engineering** discipline within a month of graduation. The largest employer of chemical engineering graduates over the past ten years has been Micron Technology. Thirteen of 15 graduates from December 2005 and May 2006 completed the departmental senior exit interview showing that the average starting salary in private industry was $58,400 compared to the national average of $55,900 for 2006 entry-level positions.

Significant financial support has been received from Idaho National Laboratory contractors, Micron Technology, Potlatch Corporation, and petroleum industries. Major employers of graduates include the microelectronics industries (especially Micron, Intel, and AMD), pulp and paper industries (especially Potlatch and Boise Paper), chemical industries (especially Dow), petrochemical & fuel industries (especially Chevron and BP), environmental industries, and governmental contractors and laboratories especially the Idaho National Laboratory and Batelle.

These areas include pulp and paper research, colloids and surface science, nanotechnology, environmental biotechnology, microfluidics, process and product design, biodiesel, and fluid separations.

Since 2000 both enrollments and BS degrees granted have decreased slightly. Measures of total undergraduate enrollments show a 14-19% drop over this six year period. BS degrees granted have decreased from 20 in 2000 to an average of 15 in the years 2004-2006. However, the 2006-07 junior class totals 25. As usual, enrollment and degrees awarded closely follows the national trends where similar decreases have been recorded recently.

The University of Idaho is recognized as a regional leader in **civil engineering** education, offering high quality programs at the undergraduate and graduate levels including studies in transportation, water resources, structural, geotechnical, and environmental engineering. The department has made a strategic decision to focus resources towards Transportation and Water Resources (including ecohydraulics), areas where the department can excel at the national and international level. Industry support is provided by the Civil Engineering Advisory Board, consisting of 6-8 practicing civil engineers. These members are very active and have helped the department establish a summer internship program that "connects" the students with potential employers looking to hire UI undergraduates.

In 2006, CE graduates took positions with consultants in the Pacific Northwest, Idaho and Washington Departments of Transportation, and contractors. There will always be a need to maintain and renew our infrastructure and this will require a steady supply of civil engineering graduates. Additional spurts in economic activity, as with Idaho's Garvee bond, has already resulted in a greater demand for civil engineering graduates. The department also helps place students into summer civil engineering internships and academic year internships on research projects funded through NIATT, CER and other sponsors.

Our civil engineering students are also active in student chapters of professional organizations, such as ASCE and ITE. Participation in these activities allows them to attend regional and national competitions (concrete canoe and the steel bridge, for example), meet other students, and visit civil engineering design offices and construction sites.

Enrollments have consistently ranged between 180 and 200 undergraduate students, with about 25 BSCE graduates per year. The graduate enrollments are also good, with about 66 students (11 PhDs, 27 MS, and 6 MEngr) on campus and about 22 students pursuing MEngr degrees through Engineering Outreach.

All of the undergraduate students who have earned degrees in **computer science** in the last several years have received employment in the field or have continued with graduate studies. Approximately 20% of the students continue for graduate studies either at the University of Idaho or other universities. Employment of CS students has been verified through several sources, including graduating senior exit interviews, contacts from companies who have employed the students, contacts with the Engineering Expo, the university's recruiting office, and other sources, such as data provided to departments from the Association for Computing Department Heads and the professional society, the Association of Computing Machinery (ACM).

Students have found employment with companies such as Microsoft, Intel, Hewlett-Packard, Micron, and a number of smaller companies in the region. A few students have explored their own start-up companies. Through connections and obligations associated with the Scholarship for Service program, several students have gone to employment with the federal government. Several students have found employment at the Idaho National Laboratory (INL).

Some CS students have been employed to work on traditional computer science applications such as data base designs and applied computing systems. Because of the department's research efforts associated with CSDS, IBEST, and system reliability, many students have found employment in areas of system and network security, which is becoming a major area for employment, nationally.

It must be noted that an important contribution to the department comes from the industrial advisory board, a group of professionals in the field who voluntarily give their time, representing themselves and their companies, to consult with the department on matters of curriculum and employment of the students. Through this group, the department has made a number of contacts through which several students have found employment.

Approximately 20% of ECE graduates pursue graduate education up completion of their BS degrees, either at the UI or at other top schools around the country. Based on exit interview responses and informal discussions, the remaining ECE graduates are finding employment, with many receiving multiple job offers. In recent semesters graduating students have found employment with Micron, Idaho Power, Avista, Power Engineers, Schweitzer Engineering Laboratories (SEL), Cypress Semiconductor, Hewlett-Packard, Advanced Input Systems, Agilent, Idaho National Laboratories, NASA, and the US military services, among others. Many of these employers also hire students as summer interns. Employers also visit campus for career fairs and give presentations to student groups such as the IEEE student branch.

The department had 260 undergraduate majors (69 in computer engineering and 191 in electrical engineering) and 132 graduate students (11 in computer engineering and 121 in electrical engineering) in FY 2005.

The department has received significant industrial support for instructional and research lab equipment from SEL, Micron, Avista, and Idaho Power. In most cases, these are equipment or software donations, but some are financial donations that were used to create endowments to support laboratory operations. There are also some continuing sponsored scholarships as well.

ECE students are also in demand while in school for their technical abilities. In addition to summer interns, local industries such as Cypress Semiconductor and SEL employ interns during the school year. Many research projects support undergraduates as well as graduate students. The sponsorship of interdisciplinary (with ME and BAE) capstone senior design projects is another area where students in the programs are in demand.

The department advisory board includes representatives from Micron, Idaho Power, Hewlett-Packard, Cypress, Intel and Power Engineers. The advisory board meets twice each year as part of the department's ongoing educational program outcome assessment and strategic planning activities.

All of the graduates from the **Materials Science & Engineering** programs are either finding good paying jobs or are joining graduate programs at UI or at other top schools. Companies, national labs, and government organizations that express interest in, or hire, our graduates include Novelis (Alcan), US Posco, Wah Chang, Precision Castparts Corp., Calloway, Ruger Casting, Wagstaff Engineering, Honeywell, AMI, Simplot, Hewlett-Packard, Idaho National Laboratory, Pacific Northwest National Laboratory, Norco Steel, Boeing, Micron, GM, Ford, Daimler-Chrysler, Vanalco, Timet, RIT (PMI), Allegheny-Technologies, Dept. of Energy (BOM), NRL, USAF, NASC, Homeland Security, General Dynamics, Lockheed-Martin, Northrop-Grumman, Sweitzer Engineering, and KTech. MSE students have interned at Micron, Wagstaff Engineering, Honeywell, US Posco, INL PNNL, and Homeland Security.

Research emphasis areas in materials science include improved lead batteries, nuclear recycling, magnetic memory materials, light-weight automotive components, and cold spray forming of titanium component. NRL, AF, DOE, IPP (non-proliferation program, Battelle PNNL, INL, and NSF have contributed financial support towards these research areas.

The departmental industrial advisory board has actively supported the MSE program both in formal meetings and in with support for equipment.

Senior exit surveys in **Mechanical Engineering** indicate that the job market is excellent with most students either going to work or moving on to graduate school. The chair consistently receives calls and emails from companies and past alumni who are seeking ME graduates at both the BS and MS levels.

Senior exit surveys conducted in the spring semester (prior to graduation) are used to assess the demand for the ME graduates at the BS level. Between 2002 and 2004, ME had 105 students respond to the survey. Prior to graduation 32 had accepted employment opportunities,

30 were accepted for graduate school, 5 were returning to the military, 33 were for employment, and 5 had "other plans". In 2004 salaries for BSME graduates ranged from $40-50K. Because the survey is conducted prior to graduation, the department does not always have precise information on final employment status. However, from alumni surveys, it appears that essentially all ME graduates find employment within a few months after graduation. MSME graduate students have many employment opportunities. This last year, MSME graduates received offers ranging from $65-75K upon graduation. Companies that hire these graduates are varied with no single industry dominating the market. Companies that hired ME graduates include Micron, Intel, Boeing, Wagstaff Engineering, Advanced Input Devices, Argonne National Lab, Pacific Northwest Lab, Schewietzer Engineering, Ford, General Motors, Bombardier, Artic Cat, CAT, Manning Applied Technology, Isothermal Research Systems, Idaho Power, Potlatch, US Army Corp of Engineers, Puget Sound Naval Shipyard, and Quest Aviation, to name a few.

Students are also encouraged to find summer (or semester) internships prior to graduation. More than 75 companies have provided internships to students over the past six years. Many of these companies are listed as employers in the previous paragraph.

Nuclear power is experiencing a world-wide renascence. Global warming and dependence on foreign fossil fuels are the major drivers. Utility companies in the U.S. have indicated interest to build over 12 new nuclear plants within the decade. The nuclear workforce is aging. Almost half of the nuclear workforce will be eligible to retire within the next 5 years. The demand for nuclear scientists and engineers currently exceeds the supply; unemployment in the nuclear industry is near zero.

Engineering Outreach provides distance education to students needing graduate degrees or professional continuing education, both within the state of Idaho and throughout the nation. Most of these students are working professionals who are place-bound, unable to leave their jobs or move their families to attend courses at a traditional university campus.

During the fall 2006 semester, EO courses generated 361 enrollments as of the 10th day of classes. Of these, 102 enrollments (28%) were from Idaho students, 246 enrollments (68%) were from United States students outside of the State of Idaho, and 13 enrollments (4%) were from international students.

These students are employed by a variety of companies, government agencies, and military organizations. Within Idaho, these include: AMI Semiconductor, Micron, Hewlett-Packard, and Bechtel at the Idaho National Laboratory. Other employers nationwide include: The Boeing Company, General Electric, General Motors, Hutchinson Technology, Indian Health Services, IBM, Lucent, Microsoft, Northrop Grumman, Schweitzer Engineering Laboratories, and all branches of the U.S. military.

VI. Unique Contributions to Idaho Residents

UI has the only programs in biological and agricultural engineering in the state of Idaho. The department and its graduates directly address the state's needs for solutions to agricultural problems with irrigation, water quality, animal waste management and odor, and machinery for cultivation and harvesting.

Several businesses have been founded based on chemical engineering research in the areas of pulp and paper, for example Pacific Simulation in Moscow and consulting companies, hazardous waste management, for example HazAnswers in Idaho Falls and Terra Graphics in Moscow, and environmental biotechnology, for example Innovative BioSystems in Moscow. Programs and courses within chemical engineering have been developed to meet specific state needs. For example, a program in Hazardous Waste Management was developed in response to the hazardous waste management issues at the Idaho National Laboratory. Courses in integrated circuit fabrication and statistical process analysis were developed to support the

microelectronics industry, especially Micron Technology, and to provide graduates trained in microelectronics fabrication.

Civil Engineering projects include highways, transportation, clean and waste water facilities and networks, structures, environmental engineering, and many other items which benefit the residents of the state of Idaho. Within the state of Idaho, UI graduates continue to significantly influence the work performed by Idaho Transportation Department and the Idaho Department of Water Resources and the many municipal city districts. CE graduates are employed by many state agencies, including ITD, IDWR, DEQ and federal agencies such as BLM, EPA, USDA.

The Battelle Energy Alliance (BAE) has been contracted by DOE to operate and grow the Idaho National Laboratory (INL) from 2005-2015. The graduate-level science and engineering education (and research) opportunities provided by the UI under contract to the INL are also made available to Idaho residents.

The Engineering Outreach program is unique among Idaho's engineering schools' programs around the nation. It is the first program of its kind in the U.S. to offer all courses in a DVD/Web support format. DVD delivery allows complete viewing of course content on a computer without the bandwidth limitations imposed by many Web-based courses.

VII. Areas of Commonalities with Degrees/Programs at Other Idaho Colleges and Universities with Rational As to Why

There is very little commonality between the program and programs at other schools in the state. There are no other programs in **biological and agricultural engineering** in the state. The UI program is unique in its combination of the life sciences with engineering.

There are no other **Chemical Engineering** degrees or programs at other Idaho colleges or universities.

Both Boise State University and Idaho State University offer a BS and MS degrees in **civil engineering.** The UI Civil Engineering department uniquely offers a PhD in civil engineering, MS degree in geological engineering and a MEngr degree in engineering management. This part of a comprehensive offering of engineering degrees provides an ideal environment for students interested in cross-disciplinary opportunities.

Both Boise State University and Idaho State University offer BS degrees in **computer science.** Additionally, BSU offers the MS degree in computer science. Only the University of Idaho offers the PhD degree in computer science. The three undergraduate programs are similar but justified by the need to supply computer science courses throughout the universities and the need for computer science graduates.

BSU and ISU both offer ABET accredited BS **Electrical Engineering** degree programs. Each of the three BSEE programs has somewhat different areas of emphasis. The BSU program emphasizes semiconductor devices and analog electronics. The ISU program has limited depth in any one area. The UI BSEE program provides emphasis areas of power engineering, communications, and analog electronics. While analog electronics is a common area with BSU and to some extent with ISU, there is significant demand for engineers in this specialty area. The UI program has more depth in electromagnetics than BSU or ISU.

The UI BS **Computer Engineering** program is the only ABET accredited computer engineering degree program in the state. BYU-Idaho offers a BSCompE degree program and appears to be in the process of applying for ABET accreditation. The BYU-Idaho program concentrates on the software side of computer engineering. The UI program is much stronger in the hardware

portion of computer engineering and requires more depth and breadth in software, as well as a significantly larger number of technical electives.

BSU offers Masters degrees in **electrical engineering** and in **computer engineering**, and recently added a Ph.D. degree. The differences in emphasis areas described under BS degree programs also apply to the graduate programs. According to a 2004 IEEE Power Engineering Society survey, the UI ECE department offers more power courses through distance education than any university in the country. The ECE department offers Certificates in Power Systems Protection and Relaying, Communication Systems, Electric Machines and Drives, and Analog Integrated Circuit Design.

The only commonality is with the **Materials Science & Engineering** program recently established at BSU due to the close proximity of Micron.

Both BSU and ISU offer **Mechanical Engineering** programs all of which were sanctioned by the SBOE. The rationale is based on a national need for mechanical engineering graduates and has been verified by the increased enrollments in all programs. Collaborative research is conducted among UI, BSU and ISU by selected faculty members in areas including pedagogy, combustion, and manufacturing assistance. UI and ISU work closely in disseminating graduate coursework for students at INL and the Southeast Idaho region, especially in courses related to nuclear engineering.

ISU likewise offers similar graduate degrees in **Nuclear Science & Engineering**. ISU focus strengths are in undergraduate and graduate physics (reactor physics, nuclear accelerators and health physics). The UI's focus is in engineering (nuclear engineering, chemical engineering and materials science & engineering). Together, UI and ISU are able to provide comprehensive undergraduate and graduate programs in the nuclear science and engineering area.

VIII. Relationship/Collaboration with other UI Degrees/Programs & How the Courses in the Program are used for Other Degrees

Bio and Ag Engineering faculty are active with several interdisciplinary programs in the university. Tom Hess, a professor of BAE, is the director of the Environmental Engineering program. Jan Boll is leading a recently funded university initiative that will coordinate water-related activities across the state. The upper-division classes are taken by many students pursuing degrees in other disciplines, such as environmental science, hydrology, geology, MMBB, soil & land resources, natural resources, forest resources, geography, biology, and chemistry.

A limited number of **chemical engineering** courses are used in other degree programs outside of engineering. Environmental science students take chemical engineering courses in environmental technology. Chemistry students take chemical engineering classes as applied chemical technology classes. Research collaborations have been established between chemical engineering and chemistry, physics, microbiology, forest products, business, and with several departments in the agricultural sciences.

The Landscape and Architecture degree program relies on the department offering "Elementary Surveying" (CE 218) every fall semester to about 20 students. Many of the **civil engineering** courses are offered at the upper-division level. As these require rigorous engineering (Engr), math and science prerequisites, very few of these classes are taken by non-engineering, undergraduate majors.

Computer science courses are a part of the University of Idaho core curriculum and are taken by students throughout the university. Over the past year, 21 introductory CS courses have been offered to non-CS majors. Bioinformatics is an emerging discipline that unites computational and biological sciences to translate biological data into new knowledge. Core bioinformatics and evolutionary studies membership includes faculty and students from biological, mathematical and computer science. The Initiative for Bioinformatics and Evolutionary Studies is the umbrella organization that coordinates the Bioinformatics and Computational Biology (BCB) graduate degree program with an interdisciplinary group of faculty and students.

The **Electrical & Computer Engineering** department has been involved in establishing research and instructional partnerships and cross-listed coursework with other UI and WSU departments and institutes including: Mechanical Engineering, Computer Science, Materials Science and Engineering, Neuroscience, NIATT, MRCI, CAMBR, and ERI.

The ECE department joined forces with the departments of Biological Sciences, Computer Science, Psychology, and Chemistry in 2001 to begin a collaborative research and teaching effort focused around the central theme of Neuroscience. One result was the graduate program in Neuroscience at the University of Idaho, an interdisciplinary program administered from the College of Graduate Studies

ECE graduate course offerings that also serve the neuroscience include Adaptive Signal Processing, Biological Signal Processing, Information Theory, and Electroacoustic Sensors and Systems, Fuzzy Logic Systems, and Neural Networks.

The ECE Department in cooperation with the MRCI has been a funded Site for the National Science Foundation's Research Experience for Undergraduates Program. This program involves faculty and graduate students from ECE, CS, biological sciences, chemistry, and psychology who mentor 10 undergraduate students who come to the UI from across the United States to conduct summer projects in computational neuroscience and technology research.

The ECE department has joined with the ME and BAE departments in an interdisciplinary capstone senior design program. Several design teams from the capstone program also participated with students from business and economics in the Vandal Innovation and Enterprise Works program.

Collaboration with personnel from other UI degrees/programs exists both in course work and research projects of **Materials Science & Engineering**. Both undergraduates and graduate students from different disciplines including physics, chemistry, mechanical engineering, chemical engineering, electrical engineering and civil engineering take MSE classes. Cooperative recent work is on-going with faculty from physics, chemistry, chemical engineering, and electrical engineering especially in nanostructures research and magnetic/electronic materials.

Essentially none of the **Mechanical Engineering** or ENGR courses are used by other non-engineering degree programs. The reason is that ME courses generally require advanced calculus or differential equations as prerequisites. However, the ENGR courses are used by all the engineering majors in the COE as the basis of the degrees. A number of classes in the areas of controls and materials are cross listed with the ECE and MSE departments. Courses are also cross listed with Washington State University.

The UI **Nuclear Engineering** Program relies heavily on coursework from the UI departments of Chemical Engineering, Mechanical Engineering and Materials Science & Engineering.

IX. Accreditation Status of Engineering Programs (UI)

All of the undergraduate programs in the College of Engineering at the University of Idaho, except Materials Science & Engineering, are accredited by the Accreditation Board for Engineering and Technology (ABET). Materials Science and Engineering (MSE) is a recent addition to the suite of programs in the college and has produced only a few graduates to date. Accreditation of this program may be sought at the next ABET General Review if additional faculty resources indicate a probable success.

While ABET encourages programs to promote the fact that they are ABET accredited, they nevertheless have a stringent confidentially policy. Appendix A to this report contains ABET's policy on public release of accreditation information. Additionally, information that can and cannot be included in program promotional materials is included. In summary, specific comments, either laudatory or critical, are to be kept confidential, as are the specific accreditation actions, the time period covered by the accreditation, and any correspondence between ABET and the institution regarding accreditation reviews.

The following table presents all of the information that is permitted to be made public under ABET policy. Additional information can be provided if needed, and if confidentially consistent with ABET policy can be guaranteed.

Program	Current Accreditation Expires	Next Review
Agricultural Engineering	September 2008	Fall 2007
BioSystems Engineering	September 2008	Fall 2007
Chemical Engineering	September 2008	Fall 2007
Civil Engineering	September 2008	Fall 2007
Computer Engineering	September 2008	Fall 2007
Computer Science	September 2007	Fall 2006
Electrical Engineering	September 2008	Fall 2007
Mechanical Engineering	September 2008	Fall 2007
Metallurgical Engineering	September 2008	Fall 2007
Materials Science & Engineering	Has never been accredited.	Fall 2007

X. Contribution of the Degree/Program to Economic Development in the Region, State, or the Governor's Science and Technology Initiative

Agriculture currently provides about 25% of the economic activity in the state of Idaho. This industry has unique requirements for engineers with expertise in the life sciences as well as the traditional skills of engineering design and analysis. The department of **Biological & Ag Engineering** provides graduates to meet the needs of the agricultural industry.

Several Idaho companies have been founded by **chemical engineering** faculty and graduates including Pacific Simulation, a Moscow company specializing in simulation and control systems for the pulp and paper industries; Terra Graphics, an environmental engineering company successful in managing several remediation projects at hazardous waste sites including the Silver Valley of northern Idaho; and HazAnswers, an environmental engineering company in Idaho Falls. The Chemical Engineering Department has provided continuous faculty presence in Idaho Falls for over 30 years in support of the Idaho National Laboratory.

Although not unique to just Idaho, the State's infrastructure consisting of transportation, utilities and water resources rely heavily on the contribution of **civil engineers**. The private and public sector also requires civil engineers to design, maintain and construct buildings, factories and other facilities essential for the economic and sustainable development of Idaho. The department graduates about 25-35 civil engineers every year, and a majority of them choose to live and work in Idaho.

A major area of **computer science** application is computer security, survivability, and reliability. The computer science research supports entrepreneurial growth by enabling a lower cost to market for high assurance computing systems and has resulted in patents and patent applications for improved computer security, survivability, and reliability. Computer science research has identified problems in the control infrastructure of power and energy and in transportation systems when these systems are subjected to malicious acts. Intrusion detection has been improved by establishing normal software system behavior and departures from normal behavior.

Electrical and computer engineering graduates are in high demand with the majority of graduates finding employment in the state and region with companies such as HP, Agilent, Micron, Idaho Power, Power Engineers, Boeing, Cypress, Advanced Input Systems, and Schweitzer Engineering Laboratories. Over the past year, several Engineering Outreach graduate students from outside the region have applied for jobs with Idaho Power, Power Engineers, and Schweitzer Engineering Labs, bringing new engineers into the area. Research projects include advances in microwave ferrite technology, controls for miniature autonomous submarines, security and survivability of transportation systems, the application of plug and play technologies to the design of traffic controller systems, and the development of power circuits for systems-on-a-chip.

The Governor's Science and Technology Initiative covers "increased funding for research activities related to Idaho's science and technology core competences of *nanosciences and materials*. Both these latter two subjects are emphasized in the **Materials Science & Engineering** program. The MSE program provides the technology behind the materials that make communication, transportation, recreation, structures, and environment functions safe, productive, and efficient.

Mechanical Engineering graduates command some of the highest wages of college graduates. The UI ME program consistently places ME graduates in Micron, Simplot, Idaho Power, INL, Boeing, and a variety of small high-tech firms around the state and in the region. The ME Department performs active research that is funded by federal or industrial dollars; a large percent of which is paid in wages for graduate students or faculty. ME work in clean vehicle research promotes a sustainable Idaho. ME graduates are also involved with the VIEW program that is intended to promote entrepreneurial activity and technology transfer. This involvement is linked to our capstone design program that solicits industrial sponsored projects. The result are projects that are designed, tested, and built. Many of these sponsors are Idaho companies that use the design project to assist them in their business. Many of the students also connect with employment opportunities through this program.

Nuclear science and engineering has been recommended by the Governor's Science & Technology advisory committee as an important area for the state. Nuclear education, through ISU, UI and BSU is a state-wide program under development.

The **Engineering Outreach** program offers complete graduate degrees programs to those employed by Idaho business and industry. By offering these high quality academic experiences at a distance, those seeking professional development opportunities can meet their educational needs while remaining engaged with local employers. This "on the job" educational option fuels Idaho's economic development engine and meets a critical statewide need. In addition, the EO program offers specialized certificate programs designed to meet the needs of Idaho business and industry (see section II. for certificate of completion programs).

XI. Describe how the various degrees/programs or specializations within the school/college were built or will be built on existing programs, if applicable. (limit to 250 words)

The mission of the College of Engineering is accomplished through our commitment to excellent undergraduate and graduate engineering education, research, scholarship, public service, outreach, and professional development. This mission is achieved through the Moscow campus, as the foundation of our university, and its strong off-campus connections throughout the state. This includes our Coeur d'Alene/Post Falls campus with its compelling growth, the strategic hub of our Boise campus, our Idaho Falls campus with its close relation to Idaho National Laboratory, our Twin Falls campus, and other statewide instructional, outreach, research centers and institutes, and stations throughout Idaho.

Our college of engineering goals are enhancing and developing programs of excellence in education, research, and service to the state, the nation, and the world; increasing the size and the quality of our student body; enhancing diversity among our faculty, students, and staff; increasing financial responsibility of the college and increasing public financial support provided by state and other funding sources; increasing private gift support from our alumni and friends; providing opportunities for co-op, interns, training, and employment of our graduates in a competitive market; ensuring success of our students on all levels and professional studies in key potential technical areas; producing graduates able to pursue life-long learning and continued professional development, capable of undertaking leadership roles in their profession, in their communities, and in the global society; and increasing research funding from government agencies and a wide variety of industries to promote both our undergraduate and graduate programs.

XII. Future Plans and Timelines with Rationale as to Why

Biological & Agricultural Engineering departmental goals include increasing student enrollment, expanding the program to better address students' needs in the biotechnology and biomedical fields. The department hopes to have 50% more student enrollment in three years. BAE is looking to have new courses in biotechnology and biomedical engineering within two years.

Additional graduate assistant positions in **Chemical Engineering** will be established through a current fund raising campaign. New faculty hired over the next five years will have graduate student support funded by these funds. An additional chemical engineering faculty member with a specialization in separation processes applicable to nuclear engineering will be hired during 2007 to complement the Idaho Falls faculty. Maintain and strengthen a high-caliber undergraduate program in chemical engineering. Renovate facilities over a five-year period to improve HVAC system, improve classroom, replace outdated analytical equipment, and establish modern research laboratories. Develop evolving, interdisciplinary design projects with sponsors from the major industrial chemical engineering constituencies. This will improve the already strong design experiences for chemical engineering students

The **Civil Engineering** Department plans to maintain a rigorous, and successful, undergraduate civil engineering program by continuing to graduate civil engineers of the highest caliber from an ABET accredited program. In the next three years, the department intends to implement new classes which will provide students with better computational skills and introduce them to management techniques. Such skills are likely to be in great demand in the future. With the current size of the department, the objective is to graduate 30-35 students every year. For

graduate studies, the department intends to expand the on-campus enrollment by at least 50 percent in the next five years. This will be accomplished by an added emphasis on recruitment at the national and international levels. Financial support from externally funded research expenditures will help sustain this objective. The department has opted to strategically focus its resources in two areas: (1) Ecohydraulics – with the Center of Ecohydraulics Research (CER), at the Water Center in Boise, and (2) Transportation – with the National Institute of Advanced Transportation Technologies (NIATT), on the Moscow campus. These two areas of research are broad enough, and should allow most faculty to contribute effectively. With national prominence and success, the department expects these two areas will attract considerable funding, excellent graduate students, post-docs and eminent visiting faculty.

The national trend in **computer science** is changing, as entering students are beginning to see the great career opportunities and personal satisfaction afforded by study in this field. It is the goal of the department to posture itself to take advantage of these times.
It is the department's goal to be excellent few disciplines, to be competitive at the national/international level in these select things. CS is working on making personal and professional connections with faculty at all the universities in the region who work in computer science and with specific emphasis on those who have similar research interests for several reasons. They include professional relationships with colleagues, increasing state and regional opportunities for the department work and for the graduates, and for the purposes of recruiting new, high quality graduate students. It is the goal that CS graduate students will be placed in top positions in the state and region, including research and teaching positions at other universities. The issue of place-bound students is a recent phenomenon to the university environment. We find students who are working and have families but now need the opportunities provided by a graduate education and degree. The department currently has one permanent faculty member in Idaho Falls who works as a regular faculty member in the department providing and making connections for graduate education, MS and PhD levels in that region of the state. CS expects to expand into the Coeur d'Alene region in the same way in the next few years, and will need a full-time faculty member there. In both cases, a challenge is to improve the quality of delivery of courses among the remote campuses, and to ensure that the offered courses meet the needs of the students as they progress through their programs. The department is working closely with the Department of Electrical and Computer Engineering to develop and expand graduate opportunities in jointly related research, especially in the field of Computer Engineering. CS is working with other departments within the College of Engineering and across the campus to develop evolving, interdisciplinary design projects for the required capstone design experience. Besides the engineering disciplines, the department is working on ways to include business elements and legal elements in our capstone design projects and some other coursework. CS is also working with sponsors from the major industrial computer science constituencies. This will improve the already strong design experiences for computer science students.

Maintain and strengthen the high quality undergraduate programs in **electrical engineering** and in **computer engineering**. Build on existing strength in power systems and reinvigorate analog electronics offerings. Expand computer engineering program to include hardware-software co-design experiences. Strengthen interdisciplinary capstone design experience with ME and BAE with increased involvement from other engineering programs and with the College of Business. Increase on-campus graduate enrollment of domestic students. Expand graduate course offerings in computer engineering. Increase number of full time doctoral students. Add new research area in electronic packaging. Increase research activities with industry within the state and region. Work with small businesses pursuing SBIR and STTR funding. Improve and expand laboratory space. Increase research opportunities for undergraduates.

The emphasis of the **Materials Science & Engineering** department will be focused on materials science and engineering, i.e. to encompass metals, ceramics, polymers and

electronic/magnetic materials. As such two new hires are planned, one a ceramist/nuclear engineer, the other a polymerist. It is intended that both these hires will occur in the academic year (2006/2007). The department will continue to increase its undergraduate student enrollment; with a goal of reaching 200 undergraduates by 2010. In the research arena, MSE will continue to emphasize work on electronic/magnetic devices with the goal of transitioning from earmarked money to competitive funding. The department will also build up its activities in the nuclear arena working closely with INL and CAES. Emphasis here will be on advanced (elevated temperature) materials and recycling of "once used" fuel. Work will also continue on low cost titanium components, using a powder metallurgy approach, for aerospace and industrial applications. This will include near net shape processing such as metal injection molding.

Mechanical Engineering will continue to offer a fundamentally sound undergraduate ME degree through its labs, engineering science courses, ME design sequence, and ME capstone program. The department will become leaders in entrepreneurship as engineers developing products that make the world a better place through the VIEW program. The department will continue to perform and develop research capability in areas including MEMS, controls, vehicle safety, clean burning combustion (engines), material testing and evaluation, advanced modeling, design pedagogy, and sustainable energy.

During the next three years (2006-2009) the Idaho universities are developing the research and education expertise in **nuclear science and engineering** to provide the INL and the planned Center for Advanced Energy Studies (CAES--new research facility to open in 2008 in Idaho Falls) and residents within the state with new opportunities that are in demand around the nation and the world.

Engineering Outreach is currently experimenting with various high resolution/low bandwidth Web-casting formats that will allow students to download complete DVD-quality courses to their computers over the Internet. Within the next few years, EO will beta-test this equipment and plans to eventually provide all courses in a synchronous format to students nationwide.

XIII. Fiscal Year Revenues - Current year is defined as the year the report is presented to the Board

Engineering Programs *

Revenue Received, Various Fiscal Years			
	Past Fiscal Year	Current Fiscal Year	Next Fiscal Year
Annual General Account/State Appropriation	8,937,500	9,751,500	9,765,600
Revenue from Endowment Funds	57,700	57,900	57,900
Student Fees	173,000	173,400	173,400
Federal Appropriation	150,000	150,000	150,000
Federal Grants & Contracts	9,049,700	9,223,800	9,223,800
State Grants & Contracts	1,072,700	1,075,100	1,075,100
Private Grants & Contracts	1,859,700	1,858,400	1,858,400
Private Gifts	448,200	439,300	434,300
Sales & Serv of Educ Activities			
Sales & Serv of Aux Enterprises			
Other (please identify)			
Indirect Costs	222,800	208,000	207,500
Total, All Fund Sources	22,042,100	23,000,900	23,014,500

Notes:

This report displays revenue received during the fiscal year, not expenditures made.
Round to nearest $100.00.

*** Includes the following:**

Biological & Agricultural Engineering
Chemical Engineering
Civil Engineering
Computer Engineering
Electrical Engineering
Materials Science & Engineering / IMAP
Mechanical Engineering
UI Boise Engineering
Center for Ecohydraulics

Boise State University
Idaho State University
University of Idaho
Colleges of Engineering

Presentation to
Idaho State Board of Education

November 30, 2006

Growth of Idaho's Tech Industry

- Added 1,000 net jobs in 2004, for a total of 35,000
- Venture capital investments more than tripled in 2005
- 69% of Idaho's exports are tech related
- High-tech exports increased from $1.6 billion in 2004 to $2.3 billion in 2005
- R&D expenditures of $1.2 billion in 2003
- The tech industry pays over $2 billion every year in payroll in Idaho

AeA Cyberstates 2006 report

Growth of Idaho's Tech Industry

- Forbes – Among major metropolitan areas, Boise is the fourth best place in the U.S. for business and careers, and the second best place in the western states
- The Forbes list for smaller metropolitan areas included Pocatello (23rd), Coeur d'Alene (33rd) and Idaho Falls (35th)
- Idaho Falls was singled out as a top location for top dollar jobs as programmers, systems engineers, and other high-skilled occupations

Forbes Magazine

Governor's Science & Technology Advisory Council

- Members include presidents of the state's biggest universities; executives from Micron, Qwest, Hewlett Packard; and the director of the Idaho National Laboratory in Idaho Falls
- Developing proposal for a $50 million science and technology initiative to stimulate growth of science and technology businesses
- Businesses of interest include biomedical engineering and computer chip design

Spokesman Review, Wednesday, August 9, 2006

The Situation – Engineering Education

- Four Idaho universities offering under-graduate engineering:
  - BSU
  - BYU-I
  - ISU
  - UI
- Need for continued collaboration among Idaho's state universities

Commonalities Among Idaho's Three State Colleges of Engineering

- Undergraduate degrees in Civil Engineering, Computer Science, Electrical Engineering, Mechanical Engineering
- Quality control in these programs is assured by ABET accreditation.

Differences Among Idaho's Three State Colleges of Engineering – Unique Programs

- BSU –
  - Construction Management – BS
  - Instructional & Performance Technology – MS
  - Electrical & Computer Engineering – PhD
- ISU –
  - Nuclear Engineering – BS
  - Measurement & Control Engineering – MS
  - Engineering & Applied Science – PhD
- UI –
  - Biological & Agricultural Engineering – BS, ME, MS, PhD
  - Chemical Engineering – BS, ME, MS, PhD
  - Civil Engineering – PhD
  - Computer Engineering – BS
  - Computer Science – PhD
  - Engineering Management – ME
  - Geological Engineering – MS
  - Materials Science & Engineering – PhD
  - Mechanical Engineering – PhD
  - Metallurgical Engineering – BS, MS, PhD
  - Systems Engineering – ME

B.S. Engineering Degree Programs Offered at Idaho's State Universities

(unique degree programs shown in blue)

	UI	BSU	ISU
Biological & Agricultural Engineering	X		
Civil Engineering	X	X	X
Chemical Engineering	X		
Computer Engineering	X		
Computer Science	X	X	X
Construction Mgmt		X	
Electrical Engineering	X	X	X
Materials Science & Engineering	X	X	
Mechanical Engineering	X	X	X
Metallurgical Engineering	X		
Nuclear Engineering			X

MS/ME Degree Programs Offered at Idaho's State Universities

(unique degree programs shown in blue)

	UI	BSU	ISU
Biological & Agricultural Engineering	X		
Civil Engineering	X	X	X
Chemical Engineering	X		
Computer Engineering	X	X	
Computer Science	X	X	
Electrical Engineering	X	X	
Engineering Management	X		
Environmental Engineering	X		X
Geological Engineering	X		
Instructional & Performance Tech		X	
Materials Science & Engineering	X	X	
Measurement & Control Engineering			X
Metallurgical Engineering	X		
Mechanical Engineering	X	X	X
Nuclear Engineering	X		X
Systems Engineering	X		

PhD Degrees Offered at Idaho's State Universities

	UI	BSU	ISU
Biological and Agricultural Engineering	X		
Chemical Engineering	X		
Civil Engineering	X		
Computer Science	X		
Electrical and Computer Engineering		X	
Electrical Engineering	X		
Mechanical Engineering	X		
Materials Science & Engineering	X		
Metallurgical Engineering	X		
Nuclear Engineering	X		
Engineering and Applied Science			X
Nuclear Engineering Option			X
Subsurface Science Option			X

Budgets

in millions, rounded

	UI	BSU	ISU
State	8.9	6.8	2.6
Research	12.6	4.3	1.7

Enrollments
(2004-2007)

	UI	BSU	ISU	US*
2004-2005				
UG	1,615	1,079	470	409,778
GRAD	480	316	98	143,915
2005-2006				
UG	1,538	1,176	456	397,437
GRAD	431	274	100	139,370
2006-2007				
UG	1,412	1,296	454	n/a
GRAD	359	270	85	n/a

*US figures from ASEE.ORG

Selected Engineering Constituencies

- Idaho National Laboratory
  - Center for Advanced Energy Studies (CAES)
- American Microsystems, Inc.
- Idaho Power
- Micron Technologies, Inc.
- J U B Engineering
- QWEST
- Power Engineers
- Premier Technologies
- Pacific Simulation
- Terra Graphics
- Stiletto Tool
- Boeing
- Crowley Davis Research
- Chevron
- Idaho Department of Water Resources
- US Department of Environmental Quality
- Agilent Technologies
- Intel
- AMD
- Boise Paper
- Dow
- Microsoft
- Hewlett-Packard
- Schweitzer Engineering
- Wagstaff Engineering
- Washington Group International
- Itron
- TenXsys

- The INL Center for Advanced Energy Studies (CAES) is utilizing the Idaho universities to build a mutually beneficial entity
- The Colleges of Engineering from BSU, ISU, and UI are bringing unique expertise to bear on national energy problems
  - BSU – strong materials science and alternate energy research
  - ISU – strong expertise in nuclear and alternative energies and physics
  - UI – strong research in science and engineering supporting the nuclear mission and alternative energies
- These collaborations will build capabilities at each institution and will assist in solving energy problems for the nation
- CAES and the INL will continue to need strong engineering support in the state

Harold S. Blackman, Ph.D.
CAES Interim Director

COE UI Unique Programs, Research Centers & Key Facilities

- Center for Advanced Microelectronics and Biomolecular Research (CAMBR)
- Center for Applied Thermodynamic Studies (CATS)
- Center for Ecohydraulics Research (CER)
- Center for Secure and Dependable Systems (CSDS)
- Initiative for Bioinformatics & Evolutionary Studies (IBEST)
- Institute for Materials and Advanced Processes (IMAP)
- Microelectronics Research and Communications Institute (MRCI)
- NASA Idaho Space Grant Consortium (NASA ISGC)
- National Institute for Advanced Transportation Technology (NIATT)
- Bioinformatics and Computational Biology
- Environmental Science
- Neurosciences
- Water Resources

BSU - Unique Programs, Research Centers & Key Facilities

- Center for Environmental Sensing
  - EPA/NSF/FAA funded initiative
- Center for Materials Characterization – NSF MRI/Industry funding
  - Transmission Electron Microscope
  - X-Ray Diffractometer
  - Atomic Force Microscopes (2)
- Center for Orthopaedic and Biomechanics Research
  - Strong collaboration with Biomolecular Research Center, Intermountain Orthopaedics, biology, chemistry, local surgeons and health care providers
- FAA Air Transportation Centers of Excellence
  - Consortium member in ACER and PARTNER (18 Academic and 40+ Industrial partners)
- Boise State University Key Facilities
  - New Product Development Laboratory – EDA/Industry funding
  - Beowulf Computer Cluster Laboratory – NSF/Industry funding
  - Idaho Microfabrication Laboratory – DoD and Private funding
  - Advanced Materials for Extreme Environments Laboratory – DoE/DoD/Industry
  - 3-Dimensional Electronic Interconnect and Packaging Laboratory – DoD funding
  - Biomaterials Research Laboratory – NIH funding
  - Wind Energy Research Laboratory – EPA funding

ISU – Unique Programs, Research Centers & Key Facilities

- Nuclear Engineering BS (NE), MS (NS&E), PhD (Engr & Applied Science) Degree Programs (expanding)
  - Institute of Nuclear Science and Engineering
  - Nuclear Reactor Laboratory, including an AGN-201 reactor and a subcritical assembly
  - Idaho Accelerator Center
- Measurements and Control Engineering M.S. Degree Program
  - Measurement & Control Engineering Research Center (MCERC)
- Biomedical Engineering (interdisciplinary initiative)
  - Three research centers joint with Health Sciences, Biological Sciences, Pharmacy, Physics, Chemistry
    - ISU Biomedical Research Institute (IBRI) – joint with Pharmacy
    - Center for Motion Analysis and Biomechanics (CMAB) – joint with Biological Sciences
    - Measurement and Control Engineering Research Center– prosthetic arm

Regional Impact

- Many engineering students are employees of regional companies
- Idaho engineering programs provide opportunities for continuing engineering education, including access to graduate programs
- Enrollment in engineering degree programs positions practicing professionals for career advancement and contributes to the technological advancement of their employing companies
- Idaho engineering stimulates economic development in partnership with area industry and government agencies

Ideas. Innovations. Idaho.

Idaho's new license plate – We're serious about growing high-tech industry in our state

SUBJECT

New Graduate Program – Master of Nursing and Master of Science in Nursing – Boise State University

APPLICABLE STATUTE, RULE, OR POLICY

- Idaho State Board of Education Governing Policies and Procedures, Section III.G.4 and 5, Program Approval and Discontinuance
- Sections 33-107 (7), 33-4001. Idaho Code.

BACKGROUND

In accordance with Board policy III.G.4.(a) (1), Board approval is required prior to implementation of any new academic program, instructional unit, minor, option, or emphasis with a financial impact of $250,000 or more per year. In accordance with Board Policy III.G.4, (a) (2), the Executive Director is authorized to approve, prior to implementation, any new academic program, instructional unit, minor, option, or emphasis with a financial impact of less than $250,000 per year.

DISCUSSION

Boise State University is proposing two new graduate degrees: a Master of Science in Nursing, which will require a thesis and will target students who plan to proceed toward a doctoral degree and a Master of Nursing, which will require the completion of a project that will enhance skills and knowledge relevant to a career path. Both degrees will utilize the same faculty and share most of their coursework. The proposed program builds upon BSU's undergraduate baccalaureate nursing program which has existed since 1975.

In September 2006, the Provosts from Idaho State University and Boise State University signed a Memorandum of Agreement, which included that BSU and ISU will together establish a framework for graduate nursing education through the state with a shared core graduate curriculum; ISU agreed to support the creation of BSU's master's degree program focusing on population health (public health); and the Nursing Departments of ISU and BSU will work to reduce duplication in programs.

The Northwest Commission on Colleges and Universities regionally accredits BSU and is currently accredited at all degree levels (A, B, M, D). The specialized accreditation body for the proposed programs is the National League for Nursing Accreditation Commission (NLNAC). The NLNAC reaccredited the Nursing Department's Associate and Baccalaureate degree programs in 2002. The proposed program will be submitted for specialty accreditation by NLNAC before the graduation of the first cohort of students. Subsequent evaluations will occur on an eight year cycle.

In spring 2005, 2,800 alumni of BSU's AS and BS nursing programs were surveyed to determine level of interest in a master's degree program in nursing. The survey returned 522 responses. Thirty-seven percent indicated interest in pursuing a master's degree in nursing and the same percentage indicated an extreme likelihood of applying within the next five years. Sixty-four respondents

indicated they were extremely likely to somewhat likely to attend a masters program at BSU within five years.

Staff support will be provided by reallocating 0.25 FTE from the seven existing staff members. Existing equipment is sufficient to support the proposed program. To further strengthen the program, funds for two graduate assistantships will be requested from internal reallocation in the near future.

The undergraduate program currently utilizes a distributed method of instruction that includes on-line, hybrid on-line and on-campus, and cable TV delivery modes. Because most prospective students for the proposed master's program will be employed off-campus, the Department plans to continue to utilize distributed methods of instruction for all of its students. BSU will work with ISU to develop core courses for graduate nursing education, those core courses will be offered on-line.

The proposed program will be the only graduate nursing program with an emphasis on population nursing, which has its foundation in public health nursing focusing on health promotion and disease prevention. ISU already offers master's level programs in nursing that differ in focus.

Idaho State University has five specialty options in Master of Science in Nursing program: Family Nurse Practitioner, Clincial Nurse Specialist, Clinical Nurse Leader, Nursing Education and Nursing Leadership. The emphasis for the proposed BSU Master of Science in Nursing and Master of Nrusing degrees is on population health with a strong reinforcement of public health nursing.

Other nursing programs in Idaho (College of Southern Idaho, North Idaho College, Lewis-Clark State College, Eastern Idaho Technical College, and BYU-Idaho) do not offer graduate level nursing education. The University of Idaho currently does not have a nursing program. Northwest Nazarene University located in Nampa, ID has an undergraduate nursing program but does not have a graduate nursing program. Albertson College of Idaho does not have a nursing program.

The proposed nursing program is an effort by BSU to offer masters consistent with state needs and that are specifically designed to serve a diverse population through graduate programs in the areas of health profession. The program fulfills a number of goals and strategies in BSU's strategic plan, *Charting the Course*. Specifically, the new programs respond to the educational needs of the region, integrate research and teaching, and offer flexible course delivery options.

The state of Idaho currently faces a nursing shortage. This is evidenced most recently by the actions of Idaho Governor James Risch to form a statewide taskforce to examine the nursing shortage and make recommendations as to what needs to occur in higher education to help avert this crisis. Policy makers in the U.S. and in Idaho are realizing the major roadblock to producing more nurses is a lack of faculty with post-baccalaureate degrees. The Masters-prepared nurses who graduate from BSU's program will be able to teach in academic

settings. Although the primary focus of the proposed graduate program is to produce Masters-prepared nurses to work in clinical settings, graduates of BSU's program will have credentials required by the Idaho State Board of Nursing to teach in college-level nursing programs. Additionally, from the pool of Masters-prepared nurses will come the cohort of nurses who will pursue a Ph.D. in Nursing, the degree needed to teach a full range of undergraduate and graduate coursework at Idaho's universities.

Fiscal Impact

Estimated Fiscal Impact	FY 08	FY 09	FY 10	Total
A. Expenditures				
1. Personnel	$208,852	$308,490	$401,796	**$919,138**
2. Operating	$8,000	$10,000	$15,000	**$33,000**
3. Capital Outlay	$2,000			
4. Facilities				
TOTAL:	**$218,852**	**$318,490**	**$416,796**	**954,138**
B. Source of Funds				
1. Appropriated Reallocation – MCO	$190,172	$288,950	$386,370	**$865,492**
2. Appropriated – New – MCO				
3. Federal funds				
4. Other grants				
5. Fees	$5,000	$5,150	$5,304	**$15,454**
6. Other: Endowment	$23,680	$24,390	$25,122	**$73,192**
TOTAL:	**$218,852**	**$318,490**	**$416,796**	**$954,138**
C. Nature of Funds				
1. Recurring *	$218,852	$318,490	$419,796	**$954,138**
2. Non-recurring **				
TOTAL:	**$218,852**	**$318,490**	**$419,796**	**$954,138**

IMPACT

If Board approved, the institution will implement this program and it will be subject to future monitoring for program compliance.

STAFF COMMENTS AND RECOMMENDATIONS

BSU's request to offer a Master of Nursing and Master of Science in Nursing is consistent with their Eight-Year Plan for Delivery of Academic Programs in the Southwest Region. Board staff and CAAP recommend approval as presented.

BOARD ACTION

A motion to approve Boise State University's request to offer a Master of Nursing and Master of Science in Nursing.

Moved by_____ Seconded by_____ Carried Yes_____ No_____

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REFERENCE: APPLICABLE STATUTE, RULE, OR POLICY

4. Program Approval Policy

Program approval will take into consideration statewide and institutional objectives.

a. New instructional programs, instructional units, majors, minors, options, and emphases require approval prior to implementation;

(1) Board Approval – Board approval prior to implementation is required for any new:

(a) academic professional-technical program, new major, minor, option, emphasis, or instructional unit with a financial impact* of $250,000 or more per year;
(b) graduate program leading to a master's, specialist, or doctoral degree.

(2) Executive Director Approval – Executive Director approval prior to implementation is required for any new academic or professional-technical program, major, minor, option, emphasis or instructional unit with a financial impact of less than $250,000 per year.

b. Existing instructional programs, majors, minors, options, emphases and instructional units.

(1) Changes, additions, expansions, and consolidations to existing instructional programs, majors, minors, options, emphases, or instructional units with a financial impact of $250,000 or more per year require Board approval prior to implementation.

(2) Changes, additions, expansions, and consolidations to existing instructional programs, majors, minors, options, emphases or instructional units with a financial impact of less than $250,000 require executive director approval prior to implementation. The executive director may refer any of the requests to the Board or a subcommittee of the Board for review and action. All modifications approved by the executive director shall be reported quarterly to the Board. Non-substantive name or title changes need not be submitted for approval.

c. Routine Changes

Non-substantive changes, credits, descriptions of individual courses, or other routine catalog changes do not require notification or approval. Institutions must provide prior notification of a name or title change for programs, degrees, departments, divisions, colleges, or centers via a letter to the Office of the State Board of Education.

5. Approval Procedures

a. Board Approval Procedures

(1) Subsequent to institutional review and consistent with institutional policies, all requests requiring Board approval will be submitted by the institution as a notice of intent in a manner prescribed by the Chief Academic Officer of the Board.

(2) The Chief Academic Officer shall forward the request to the CAAP for its review and recommendation. Professional-technical requests will be forwarded to the Idaho Division of Professional-Technical Education for review and recommendation prior to CAAP review and action. If the CAAP recommends approval, the proposal shall be forwarded to the Board for action. Requests that require new state appropriations will be included in the annual budget request of the institution and the State Board of Education.

(3) CAAP may, at its discretion, request a full proposal for any request requiring a notice of intent. A request for a new graduate program requires a full proposal. Full proposals should be forwarded to CAAP members at least two (2) weeks prior to the next CAAP meeting for initial review prior to being forwarded to the Board for approval.

(4) As a part of the full proposal process, all doctoral program request(s) will require an external peer review. The external peer-review panel will consist of at least two (2) members and will be selected by the Board's Chief Academic Officer and the requesting institution's Chief Academic Officer. The review will consist of a paper and on-site review followed by the issuance of a report and recommendations by the peer-review panel. Considerable weight on the approval process will be placed upon the peer reviewer's report and recommendations.

b. Office of the State Board of Education Approval Procedures

(1) All requests requiring approval by the Executive Director will be submitted by the institution as a notice of intent in a manner prescribed by the Chief Academic Officer of the Board. At the discretion of the Chief Academic Officer, the request may be forwarded to the CAAP for review and recommendation. Professional-technical requests will be forwarded to the

Division of Professional-Technical Education for review and recommendation prior to CAAP review and action.

(2) If the CAAP recommends approval of the request(s), the notice of intent will be submitted to the Executive Director for consideration and action. The Executive Director shall act on any request within thirty (30) days of receipt of the Chief Academic Officer's or CAAP's recommendation.

(3) If the Executive Director denies the request he or she shall provide specific reasons in writing. The institution has thirty (30) days in which to address the issue(s) for denial of the request. The Executive Director has ten (10) working days after the receipt of the institution's response to re-consider the denial. If the Executive Director decides to deny the request after re-consideration, the institution may send its request and the documents related to the denial to the president of the Board for final reconsideration.

(4) Distance Learning Delivery and Residence Centers

All academic programs delivered to sites outside of the service area defined by the institution's role and mission statement shall be submitted to the Executive Director using a notice of intent.

REFERENCE: APPLICABLE STATUTE, RULE, OR POLICY

TITLE 33
EDUCATION
CHAPTER 1
STATE BOARD OF EDUCATION

33-107. GENERAL POWERS AND DUTIES OF THE STATE BOARD. The state board shall have power to:

(7) prescribe the courses and programs of study to be offered at the public institutions of higher education, after consultation with the presidents of the affected institutions;

TITLE 33
EDUCATION
CHAPTER 40
BOISE STATE UNIVERSITY

33-4001. BOISE STATE UNIVERSITY ESTABLISHED -- STANDARDS -- PROFESSIONAL-TECHNICAL PROGRAMS. The college now known as Boise state college and previously operated and conducted by Boise community college district in Ada County, Idaho, known as Boise college, shall be established in the city of Boise, Idaho, as an institution of higher education of the state of Idaho, for the purpose of giving instruction in college courses in sciences, arts and literature, professional, technical and other courses of higher education, such courses being those that are usually included in colleges and universities leading to the granting of appropriate collegiate degrees, said college to be known as Boise State University. The standards of the courses and departments maintained in said university shall be at least equal to, or on a parity with those maintained in other similar colleges and universities in Idaho and other states. All programs in the professional-technical departments, including terminal programs now established and maintained, may be continued and such additional professional-technical and terminal programs may be added as the needs of the students attending such university taking professional-technical and terminal programs shall warrant, and the appropriate certificate for completion thereof shall be granted. The courses offered and degrees granted at said university shall be determined by the board of trustees.

SUBJECT

Report on Governor's Nursing Taskforce

APPLICABLE STATUTE, RULE, OR POLICY

N/A

BACKGROUND

In August 2006, Governor Risch appointed an 18-member task force to collaborate and form recommendations on how Idaho might address the nurse shortage. In October 2006, the task force released a report that provides an overview of the shortage with an analysis of nurse supply and demand and a snapshot of shifting trends, key challenges and proposed short and long-range solutions.

DISCUSSION

Like other states, Idaho has a shortage of nurses. And, like most other states, this shortage is expected to become critical between now and 2020. With nurses comprising the "front line" staff in most health care settings, their ability to deliver safe, competent care is essential to the safety and well-being of Idahoans now and in the future.

Through its study and deliberation, the task force determined a number of strategies to increase the supply of nurses in Idaho. The recommended strategies focus on five anticipated outcomes.

ANTICIPATED OUTCOMES

- Increased ability to educate more nurses
- Development and maintenance of a diverse nursing population that includes targeted populations*
- Development, recruitment and retention of sufficient numbers of qualified nursing faculty
- Retention of the current experienced nursing workforce
- Continued planning for an adequate nursing workforce for the future

*Targeted populations include underserved and special populations such as: rural communities; racial and ethnic diverse groups; men and women; immigrants, dislocated and incumbent workers; and military personnel

PRIORITY RECOMMENDATIONS

The Task Force recommends five priority strategies that require immediate action and resource commitment to address Idaho's critical nurse shortage:

1. Increase of current nurse faculty salaries in Idaho's state colleges and universities over the next three years to be competitive with industry standards--$3.8 million

2. Increase by 400 nursing seats over the next two years in Idaho's state colleges and universities--$7.6 million
3. Funding to support the continued work of the Idaho Nursing Workforce Center--$300,000/year
4. Support for the development of new nursing faculty to replace retiring faculty over the next 4 years--$1.3 million
5. Expand and enhance financial support available to undergraduate, graduate and post graduate students to offset the high costs of nursing education, including scholarships and loans--$600,000/year

IMPACT

N/A

ATTACHMENT

Attachment 1 – Report of the Governor's Nursing Task Force Final Page 3

STAFF COMMENTS AND RECOMMENDATIONS

Staff offers no comments or recommendations.

BOARD ACTION

This item is for informational purposes only. Any action will be at the Board's discretion.

Report of the Governor's Nursing Task Force

October 2006

TASK FORCE MEMBERS

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Representative Sharon Block
Claudeen Buettner
Manuelita Burns
Senator Denton Darrington
Sandra Evans
J. Anthony Fernandez
Representative Margaret Henbest
Dwight Johnson
Patricia Kissell
Bonnie Lind
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Report of the Governor's Nursing Task Force

October 2006

Table of Contents

Acknowledgements **3**

Executive Summary **4**

Section 1: Idaho's Nurse Shortage **5**

An Overview
- Nurse Supply
- …and Demand
- Shifting Trends

Section 2: Key Challenges Presented by the Shortage **12**

- The Need to Educate More Nurses
- Developing and Maintaining a Diverse Nursing Population
- Retaining the Current Experienced Nursing Workforce
- Continued Planning for an Adequate Nursing Workforce

Section 3: Short- and Long-Range Strategies **22**

Section 4: Expected Outcomes and Outcome Measures **23**

Appendix 1:

References **24**

Acknowledgements

When Idaho Governor James E. Risch took the oath of office, he made the commitment “to better understand and address the critical issue of nursing shortage in Idaho” and to undertake a collaborative effort to find those common ground solutions that would serve to “deliver relief to our schools and hospitals”.

In August 2006, Governor Risch appointed a task force to collaborate and form recommendations on how we might address the nurse shortage in our state.

This report represents the work of the 18-member task force, all of whom worked tirelessly to accomplish their charge.

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EXECUTIVE SUMMARY

Like other states, Idaho has a shortage of nurses. And, like most other states, this shortage is expected to become critical between now and 2020. With nurses comprising the "front line" staff in most health care settings, their ability to deliver safe, competent care is essential to the safety and well-being of Idahoans now and in the future.

This report on the nurse shortage is presented by the Governor's Nursing Task Force, charged to identify key issues and provide recommendations to address Idaho's nurse shortage. It provides an overview of the shortage with an analysis of nurse supply and demand and a snapshot of shifting trends, key challenges and proposed short and long-range solutions.

Through its study and deliberation, the Task Force determined a number of strategies to increase the supply of nurses in Idaho. The recommended strategies focus on five anticipated outcomes:

ANTICIPATED OUTCOMES

- Increased ability to educate more nurses
- Development and maintenance of a diverse nursing population that includes targeted populations*
- Development, recruitment and retention of sufficient numbers of qualified nursing faculty
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*Targeted populations include underserved and special populations such as: rural communities; racial and ethnic diverse groups; men and women; immigrants, dislocated and incumbent workers; and military personnel

PRIORITY RECOMMENDATIONS

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1. Increase of current nurse faculty salaries in Idaho's state colleges and universities over the next three years to be competitive with industry standards--$3.8 million
2. Increase by 400 nursing seats over the next two years in Idaho's state colleges and universities--$7.6 million
3. Funding to support the continued work of the Idaho Nursing Workforce Center--$300,000/year
4. Support for the development of new nursing faculty to replace retiring faculty over the next 4 years--$1.3 million
5. Expand and enhance financial support available to undergraduate, graduate and post graduate students to offset the high costs of nursing education, including scholarships and loans--$600,000/year

Longer range strategies that further support the anticipated outcomes of the work of the Task Force, include:

LONGER-RANGE RECOMMENDATIONS

- Expand clinical training opportunities through coordination, innovation and technology
- Recruit more individuals, especially targeted populations, into nursing
- Promote adequate preparation for students prior to entry to nursing education, including high school preparation in math and the sciences
- Identify and address workplace issues in an effort to retain nurses in practice throughout their professional nursing careers
- Develop a mechanism to ensure continued collaboration among stakeholders in order to measure progress and create accountability for implementation and accomplishment of a plan for future nursing workforce needs

Section 1: Idaho's Nurse Shortage

AN OVERVIEW

Like other states, Idaho has a shortage of nurses. And, like most other states, this shortage is expected to become critical between now and 2020.

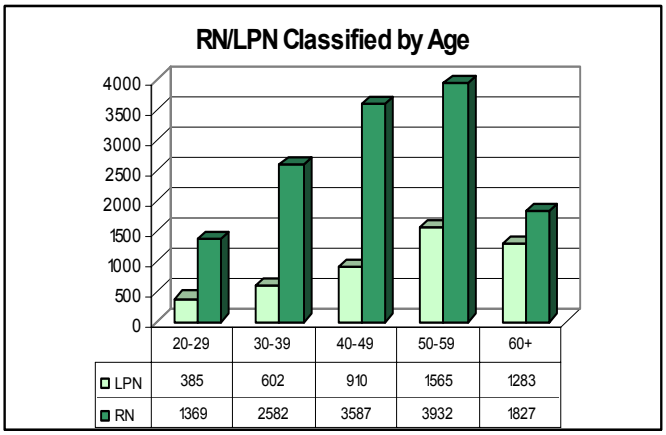
Nurse shortages are not a new phenomenon in Idaho, and in fact, have existed in cyclical trends for decades. Historically, nurse shortages, once recognized, could be adequately addressed by stepping up student recruitment efforts to generate interest in nursing as a career and by increasing the numbers of applicants admitted to existing nursing education programs. The result, within 2 to 4 years, was an increase in numbers of nursing student graduates who licensed and were then employed as nurses in the state's health care institutions. When numbers became sufficient to meet demand, recruitment efforts were scaled down and student interest and program admissions declined.

During these cyclical shortages, employers would also initiate strategies to attract nurses to their work settings, e.g. attractive competitive salaries, "sign-on bonuses" for new hires, flexible scheduling for staff nurses, and opportunities for job advancement, often with accompanying tuition reimbursement packages for nurse employees wishing to return to school to pursue advanced degrees. When the supply of nurses again began to exceed the demand, employers would often scale back the incentives until the next shortage cycle surfaced.

For years this strategy of short-term, quick response to market fluctuations worked well, and the health care industry efficiently managed variances in nurse supply and demand.

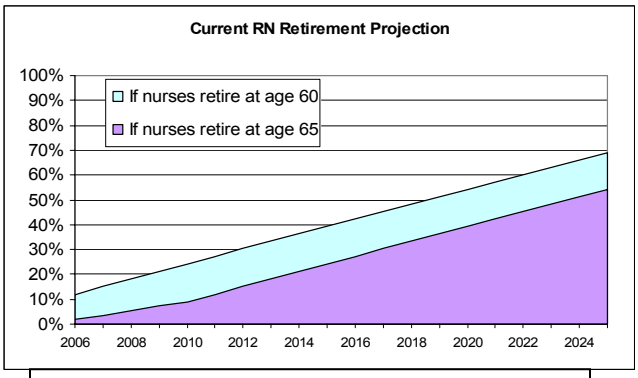
The current nurse shortage, reported in July 2002 by the U.S. Department of Health and Human Services Health Resources and Services Administration (HRSA 2002), is quite different from those of the past. Whereas previous shortages were characterized as temporary fluctuations in nurse supply and demand, the current shortage is marked by an alarming exodus of the existing nursing workforce and the industry's inability to adequately compensate by using old, familiar strategies. This upset in historical trends, coupled with an unprecedented increase in demand for nursing services, has resulted in the need for Idaho to rethink how to plan for an adequate nursing workforce for the future.

Licensed nurses constitute the largest number of healthcare providers in this country. Along with their colleagues from the other health professions, over 10,000 licensed nurses provide safe, competent care for Idaho's 1.2 million citizens. Nurses live in and provide services in every county in the state. They are employed in a variety of settings, including hospitals and nursing homes, public schools and public health districts, physician's offices and outpatient clinics, in government agencies and in colleges and universities, among others.

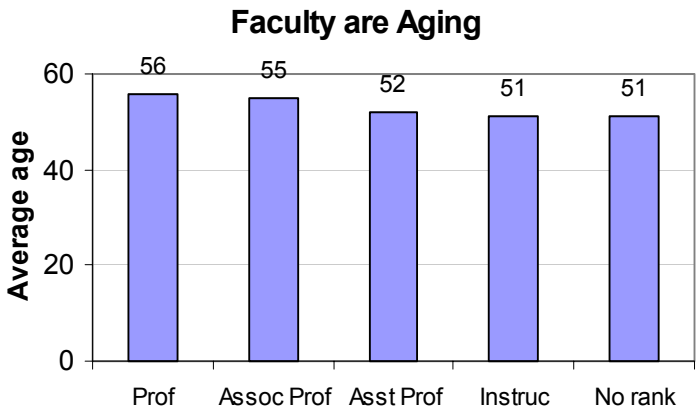


Source – BON 2005 Annual Report

Many Idaho nurses are from the Baby Boom Generation, anticipating retirement in the next 5 to 10 years. 70% of licensed nurses in Idaho are currently over the age of 40; 40% are over the age of 50. Less than 10% of Idaho's currently employed nurses are below the age of 30. If Idaho's nurses retire at age 65, by 2026 60% of today's RNs will no longer be working. If they choose to retire at age 60, 70% of our current RN population will no longer be working in 20 years. Just when we need the most nurses to care for our vulnerable elderly, our nurses will have, in fact, left the profession. Many of today's nurses will themselves join the forces of the largest group of health care consumers upon their retirement at age 65.



Source: Idaho Nursing Workforce Center Projection, based on data from the Idaho Board of Nursing 2005 Statistical Report



Only 2 schools reported having ***any*** faculty under age 40
INWC - 2006

As troublesome as evidence of the aging of Idaho's nursing workforce is, even more alarming is the evidence of Idaho's aging nursing faculty. With an average age of 55, the retirement of many of our experienced faculty over the next five to ten years is almost certain. This anticipated exodus, coupled with the inability to attract and retain experienced nurses as teachers, presents a huge challenge for Idaho's colleges and universities.

In the 2005-2006 academic year, 20% of all full-time nursing faculty in Idaho left their positions, many to double their salaries by working in hospitals or other practice settings. The most common reasons given by nursing faculty for leaving their positions are salary, followed by retirement.

The complexities and enormity of the current shortage present challenges that have never before been dealt with, including:

1. An unprecedented increase in the health care needs of Idahoans as a result of tremendous population growth, especially growth in the population over 65

2. The anticipated retirement of over 40% of Idaho's nurses in the next 10 years

3. Insufficient capacity to allow for an adequate increase in the number of students admitted to Idaho's nursing programs to offset the rapidly aging nurse population

4. The inability to recruit or retain masters and doctoral prepared nurses in Idaho's colleges and universities.

Idaho's ability to assure safe, quality, cost effective healthcare is dependent, in part, on a nursing workforce sufficient in numbers and with the appropriate education and

demonstrated competence to adequately support Idaho's healthcare industry needs as well as to respond to the health care demands of our citizens.

NURSE SUPPLY

Idaho's nurses include licensed practical nurses (LPN), licensed professional/registered nurses (RN), and licensed advanced practice professional nurses (APPN), a category that includes certified nurse midwives (CNM), clinical nurse specialists (CNS), nurse practitioners (NP) and registered nurse anesthetists. Most of Idaho's nurses are female (91%), white (91%), and over the age of 40 (73%) (Board of Nursing 2005 Annual Report).

Of the 18,043 currently licensed nurses in Idaho, 4,745 are LPNs and 13,298 are RNs. 10,682 (59%) of Idaho's nurses are employed in nursing either full or part-time. Nearly 7 out of every 10 RNs in Idaho are employed in hospitals. LPNs work primarily in hospitals, nursing homes and physician's offices.

RN/LPN Employment Site

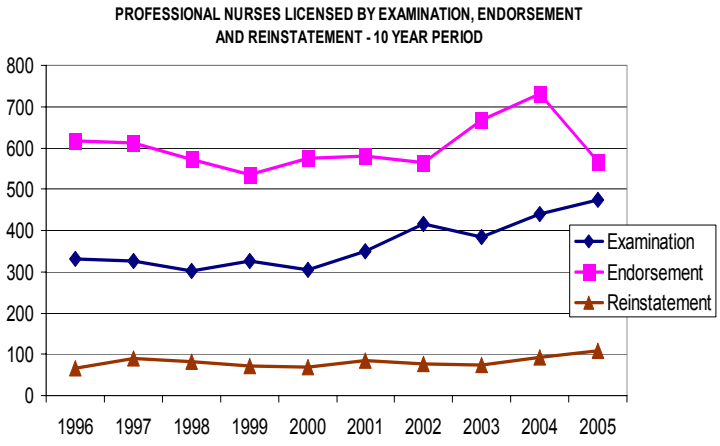
	LPN	RN
Community Health	92	347
Hospital	1035	7047
Nursing Home	1130	747
Office Nurse	960	1207
Education Program	12	255
Other	550	1336

Many nurses who are licensed in Idaho but not working as nurses have retired. Still others have left the state. A small number are employed in fields other than nursing. It is tempting to consider nurses not currently working in nursing as a potential resource to help offset the shortage. However, because of their ages, work status and life situations, the pool of licensed nurses not working in nursing does not present a rich source for mitigating the current shortage.

Idaho law requires nurses to be actively licensed before engaging in nursing practice in this state. Nurses applying for licensure in Idaho include:

- Those who are newly educated and seeking initial licensure in Idaho;
- Nurses who were educated and initially licensed in another state or territory and who are subsequently seeking licensure by interstate endorsement in Idaho;
- Nurses educated and licensed outside the U.S. seeking licensure in Idaho; and
- Nurses whose Idaho licenses have lapsed and who are seeking reinstatement of their licenses to allow them to resume practice in the state.

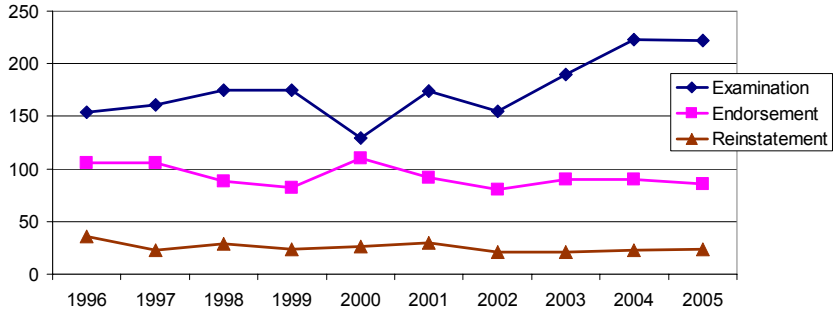
47% of Idaho's newly licensed registered nurses and 67% of newly licensed practical nurses in the past year were new nursing graduates. During that same period, 44% of newly licensed registered nurses and 26% of newly licensed practical nurses licensed by endorsement from another state where they were previously licensed and practicing. The remaining newly licensed registered nurses and licensed practical nurses in 2005 included those nurses reinstating Idaho licenses that had been allowed to lapse and those international nurses



seeking their initial licensure in the U.S. by application to Idaho.

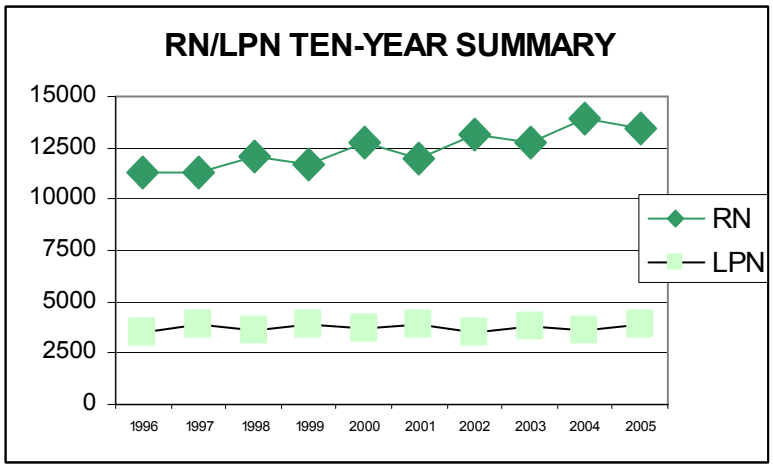
In 2005, 47% of Idaho's new nurses were new graduates, many of them from among the 745 graduates of Idaho's colleges and universities.

PRACTICAL NURSES LICENSED BY EXAMINATION, ENDORSEMENT AND REINSTATEMENT - 10 YEAR PERIOD



Once licensed, nurses must renew their licenses every two years in order to continue to practice nursing in this state. Since 1996, the number of nurses renewing licenses each biennium has been between 80% and 90% of the number of nurses licensed during the previous year.

An adequate supply of nurses in Idaho is dependent on a high percentage of licensed nurses continuing to renew their licenses every biennium while, at the same time, adding new nurses to the supply through processes of examination, endorsement or reinstatement to offset those nurses who either leave the state or leave the profession.

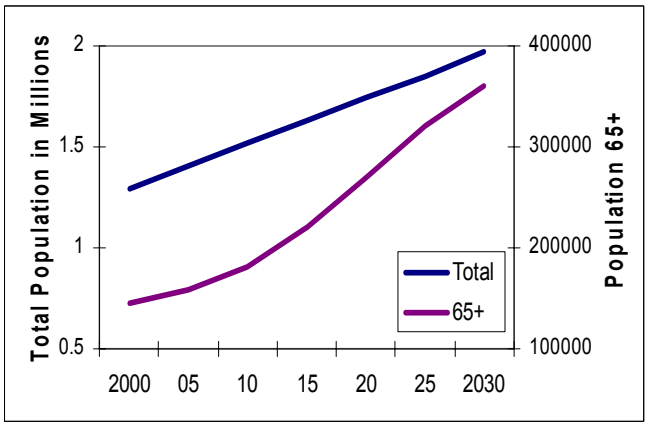


The total number of nurses licensed in Idaho has increased slightly over the past 10 years. However, unless the supply of nurses increases significantly in the next several years, it is anticipated that the number of nurses leaving the profession will soon exceed the number entering, further exacerbating the nurse shortage in Idaho.

...AND DEMAND

Idaho's population is expected to reach 2 million by 2030. With the aging of the Baby Boom Generation, the number of Idahoans over the age of 65 will have nearly doubled by that time. Since persons over the age of 65 are known to be the highest consumers of health care in our country, the demand for nurses will only accelerate with the aging of our citizens.

Projected Population Growth
INWC 2006

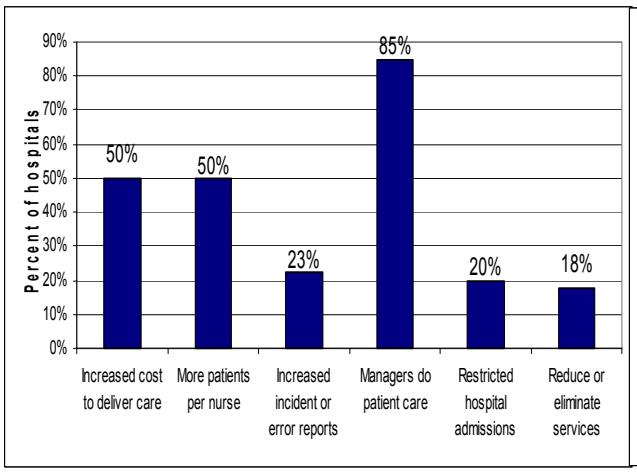


In the document, "Condition Critical: Who Will Provide Your Nursing Care in Idaho?", the Idaho Nursing Workforce Center reports that in 2005, Idaho hospitals reported vacancy rates of 6.4% for RNs and 3.6% for LPNs. The INWC indicates that while these rates are not excessive by most standards, the total numbers and distribution of nurses in our state are troubling. Idaho ranks 48th in the nation in number of licensed nurses per 100,000 population, with rural hospitals reporting nurse vacancy rates as much as 50% higher than urban hospitals. According to the INWC report, "Idaho's rural hospitals are bearing the brunt of the shortage" (INWC 2006).

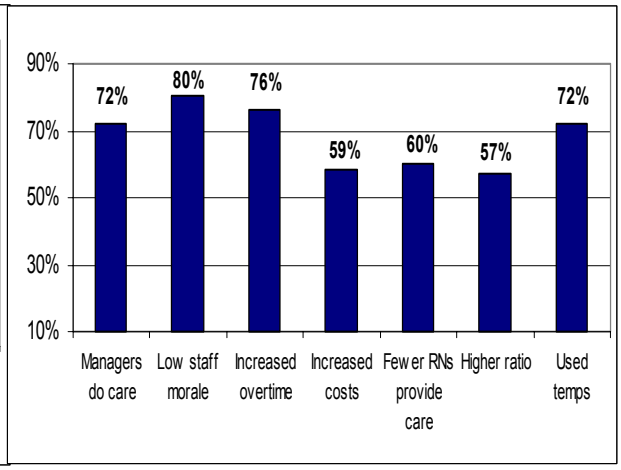
A recent national study found that in hospitals that report high patient to nurse ratios, mortality rates among surgical patients are higher and nurses are more likely to report job dissatisfaction and "job burnout" (Aiken et al., 2002). One can deduce, that as the number of licensed nurses providing care decreases, the number of untoward patient outcomes will likely increase. With these findings and with nearly ½ of Idaho's licensed nurses currently employed in hospitals, the predicted shortage has become of even greater concern to employers and policy makers.

Recent reports indicate that the current nurse shortage is negatively impacting patient safety and the quality of health care in the United States. Half of Idaho's hospitals are reporting ill-effects of the shortage including increased incidents or errors as well as difficulty in staffing specialty units, such as intensive care and neonatal ICU (INWC 2006).

Effects of Nurse Vacancies: Hospitals



Effects of Nurse Vacancies: Long-Term Care



SOURCE: INWC 2006

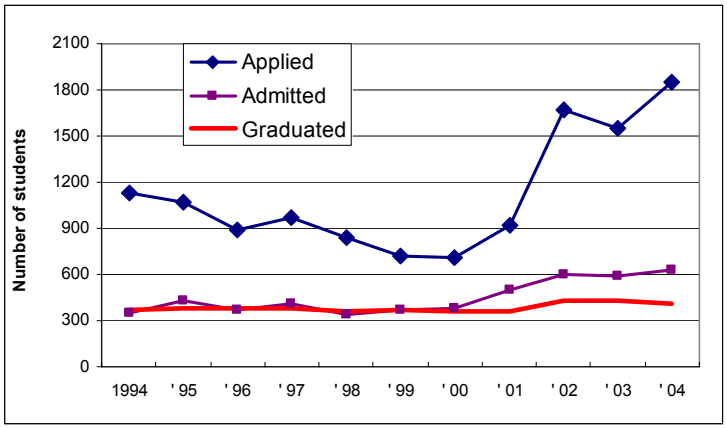
In 2005, Idaho's colleges and universities produced 745 nursing graduates. Treasure Valley hospitals alone project that it will take 100 more graduates a year than are currently produced to meet their need for beginning students to accommodate their nurse turnover. Based on the pending retirement of those nurses who will reach the age of 60 in the next few years, the Idaho Nursing Workforce Center projects 400-500 additional graduates a year will be needed to meet the entire state's growing need for entry-level nurses.

SHIFTING TRENDS

Nearly ½ of Idaho's new nurses each year are new graduates who become licensed and then seek employment in our state. In the past, this number has been sufficient to meet Idaho's nurse workforce needs. New graduates, along with licensed nurses endorsing into

the state, nurses reinstating lapsed licenses and nurses regularly renewing licenses have provided adequate numbers to staff Idaho's hospitals and nursing homes and to provide sufficient numbers of nurses to care for children in schools, to staff public health clinics and to support physician-owned practices and clinics. However, with the aging of the nurse population and retiring Baby Boomers, the number of new graduates needed to offset the number leaving the profession is increasing.

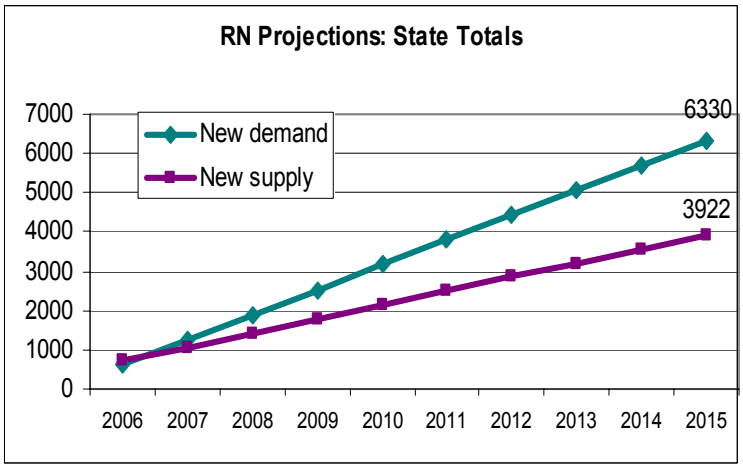
If we are to adequately compensate for the anticipated retirement of the aging nursing workforce, Idaho must plan to educate more students to become our next generation of licensed nurses. With over 1200 interested, qualified candidates denied admission to Idaho's nursing programs in the past 2 years, increasing numbers of admissions seems the obvious solution to this dilemma. However, plans to increase admissions to nursing education programs present several additional concerns which must first be addressed.



RN Programs cannot meet the demand – Number graduating has not increased

Practical nursing programs at Boise State University, the College of Southern Idaho, Eastern Idaho Technical College, Idaho State University, Lewis-Clark State College and North Idaho College admitted 207 and graduated 243 students in 2005. However, in that same year, these programs also turned away 157 applicants who were interested in becoming practical nurses because of a lack of faculty, classroom and laboratory space and/or limited student clinical experiences in the community.

Boise State University, Brigham Young University-Idaho, the College of Southern Idaho, Idaho State University, Lewis-Clark State College, North Idaho College and Northwest Nazarene University prepare registered nurses. In 2005, these institutions admitted 655 students to their associate and bachelors degree programs and graduated 502 prepared to enter practice. Interested students were also turned away from Idaho's RN programs in 2005. In fact, 1,047 students were denied admission to RN programs, again as a result of limited resources and physical capacity to accommodate them.



The current number of graduates is insufficient to meet Idaho's future need for nurses. Idaho's colleges and universities graduate approximately 750 new nurses a year at a time when hospitals and nursing homes report an annual need for up to 500 more than that number. It is clear that student enrollments in nursing programs must be increased if we plan to meet even the current needs of the state.

In order to accommodate an increased number of students, however, Idaho's nursing programs need additional qualified faculty, additional classroom, laboratory and office space, and additional opportunities for appropriate student clinical experiences in local communities. Idaho's 17 nursing education programs are currently filled to capacity. All of them report difficulty in recruiting and retaining qualified faculty. Further, clinical placements for students to develop nursing skills are in very short supply and classroom and laboratory space to support additional student numbers are needed.

Although the need for increased admissions and subsequent larger graduating nursing classes is the ultimate goal, active recruitment of potential students cannot be the initial concern. With programs currently reporting more students interested in nursing than can be admitted to existing programs, the barriers to admitting more nursing students must be addressed before further intense recruiting efforts are launched.

Several capacity resources needed to accommodate more nursing students must be immediately addressed. The need for classrooms and laboratories is crucial, however, the most critical need is for qualified nursing faculty to teach students enrolled in nursing programs. Without sufficient numbers of nursing faculty with qualifications of education and experience necessary for this demanding professional role, new classrooms and sophisticated laboratories will serve no useful purpose.

Section 2: Key Challenges Presented by the Shortage

THE NEED TO EDUCATE MORE NURSES

The U.S. Department of Health and Human Services estimates that by 2020, Idaho will lack about 30 percent of the nurses we need.

The Idaho Nursing Workforce Center predicts it will take 400 to 500 more nurses per year to meet the growing needs of the state.

Our colleges and universities must increase capacity in nursing programs in order to address the increasing need for nurses. However, about half of all qualified applicants to nursing programs were turned away in 2005.

Qualified applicants are denied admission to nursing programs for a number of reasons. Each needs to be addressed if student admissions are to increase.

1. A lack of qualified nursing faculty

Nursing faculty are prepared with master's and doctorate degrees in nursing and work with nursing students in faculty-to-student ratios sufficient to support the learning needs of students, but also to ensure the safety and welfare of patients with whom students work during their clinical experiences.

Idaho Schools report 157 full-time and 40 part-time faculty currently teaching nursing, a number that is supplemented by adjunct clinical faculty that assume responsibilities for nursing skills instruction in affiliated clinical agencies. However, they also report difficulty in attracting nurses to academic teaching as evidenced by the numbers of open teaching positions in our nursing programs at the beginning of each academic year.

Without sufficient numbers of qualified faculty, Idaho schools not only lack the ability to increase student enrollments, they are challenged even to maintain current levels of student enrollment. Salaries paid to nurses in many practice settings exceed salaries paid to faculty in Idaho's colleges and universities by as much as $20,000/year in some areas. As a consequence, nursing faculty leave academic positions for employment in local healthcare facilities, leaving open positions that are difficult, if not impossible to fill, due to the inequity of salaries compared to the industry.

Even though retirement and other personal reasons account for a significant portion of the decline in numbers of nursing faculty, it is salary given most often by faculty as the reason they leave their positions. It is salary that presents the greatest deterrent to both maintaining and increasing the numbers of qualified nursing faculty in this state.

In addressing the issue of faculty salary two very distinct components must be considered:

1) Salary adjustments for current faculty to achieve equity with industry in order to recruit and retain nursing faculty to instruct the current numbers of students enrolled in Idaho's nursing education programs; and
2) Additional monies for each new nursing faculty position necessary to increase student enrollments in these programs.

Salaries necessary to recruit and retain nursing faculty to instruct the current numbers of enrolled students present a substantial problem for Idaho's colleges and universities. Salaries paid to nursing faculty have not kept pace with the healthcare industry and can no longer compete with those paid to nurses in Idaho's hospitals. Master's degree prepared nurses are in high demand in practice settings where salaries are as much as double those paid in Idaho's academic institutions.

Idaho's nursing programs report difficulty in retaining their existing faculty primarily because of significant inequity between the salaries offered to faculty and the salaries masters-prepared nurses are paid not only in Idaho's hospitals, but also in colleges and universities in surrounding states. The average annual salary in Idaho for an experienced nursing faculty member, prepared with a master's degree in nursing is less than $47,000. This same nurse may be able to earn as much as $20,000 to $30,000 more working at the local hospital.

The faculty turnover rate in Idaho's nursing programs is 25%, an indication of the difficulty in retaining these experienced, qualified nursing professionals. Compounding the challenges created by the high turnover among faculty is the reported difficulty recruiting qualified candidates to fill these open positions. For the 23 still unfilled faculty positions in August 2006, just prior to the start of the new academic year, Idaho schools reported only 31 qualified applicants. This low number of candidates can be attributed, in part, to the low number of masters-degree prepared nurses in Idaho and elsewhere, but also to non-competitive salaries offered by Idaho's educational institutions. Qualified candidates seeking positions in Idaho turned down offered appointments because of non-competitive salaries, choosing instead to teach in other states or to seek employment outside of academia.

Competitive salaries for Idaho's nursing faculty are a priority if we hope to be able to recruit and retain qualified nursing faculty. Also needed is financial support and assistance for nurses who are pursuing advanced degrees to prepare then to teach nursing.

Nursing faculty are required to hold masters and doctoral degrees in the discipline to meet national and state standards for accredited nursing education programs. Idaho State University offers the only masters degree in nursing program in the state. Boise State University plans implementation of an MS in nursing program in the very near future. None of Idaho's schools offers a doctorate in nursing degree.

Most nurses pursuing advanced nursing degrees to prepare them for teaching roles are required to apply for financial assistance to offset the high costs of tuition and other program expenses. For nurses who must apply to programs outside Idaho, (a must for anyone pursuing a nursing doctorate), out-of-state tuition, travel and housing can become cost prohibitive. In order to afford their education, many of these nurses work while pursuing their degrees on a part-time basis, extending the time needed to complete the degree and delaying their entry into the teaching field.

Recommendation:

With the average age of Idaho's current nursing faculty at 55, a steady supply of qualified nursing faculty is necessary to build student capacity in Idaho's nursing programs.

It is recommended that nursing faculty salaries at Idaho's state colleges and universities be increased to be competitive with industry and peer institutions in an effort to retain existing faculty and to recruit new faculty necessary to replace those that leave and to add new faculty to expand student access to programs. The amount needed to accomplish this goal is $3.8 million over the next 3 years.

It is further recommended that Idaho support an additional 8 seats through the Western Interstate Commission on Higher Education (WICHE) in out-of-state institutions for students pursuing masters and doctoral degrees in nursing. Seats for 4 additional students in the initial year of funding with the addition of 2 more seats in the second year and 1 additional seat in each of the next 2 years would cover the costs of out-of-state tuition for 8 potential nursing faculty, at a cost of $777,000. In addition, it is recommended that 20 scholarships in the amount of $6,000 be made available to students pursuing graduate and post-graduate degrees in nursing for an additional cost of $120,000/year.

It is further recommended that consideration be given to extending loan forgiveness opportunities to graduates who return to teach nursing in Idaho.

2. Clinical placements for students are in high demand and short supply.

Nursing students spend an average of 2 days per week in clinical situations throughout their educational programs. These experiences are in hospitals, nursing homes, home health agencies, and community-based settings among others. With the need to increase numbers of nursing students enrolled in Idaho's programs, finding placements in many of these settings presents unique challenges.

Nursing education programs report that nursing students and faculty utilize hospitals for student clinical experiences for up to as many as 16 hours a day for 5 to 6 days a week in order to assure that each student has sufficient opportunities to develop competencies to safely provide care following graduation. Despite this heavy use of available clinical resources, there continue to be limited opportunities for students in many geographical regions.

Patient hospital stays continue to become shorter, often limiting the number of patients available for the experiences students are seeking. Additionally, with multiple nursing and other educational programs descending on the same facilities for student experiences, the sheer volume of personnel on a clinical unit can create problems for facility staff. With facilities also experiencing the effects of the nurse shortage, staff nurse preceptors are over extended in providing patient care while also assisting students who require mentoring, supervision and direction.

Studies indicate that simulating acute care experiences is an effective alternative to traditional live patient experiences for students. The use of high-tech simulation can often be used to take the place of 1/3-1/2 of traditional acute care learner experiences. Idaho's nursing programs need necessary fiscal resources to obtain the technology and equipment as well as the professional support staff to install and manage simulation laboratories to ensure meaningful clinical experiences for nursing students.

Recommendation:

It is recommended that opportunities to expand clinical learning alternatives be explored including statewide or regional coordination of clinical placements as well as innovation in clinical simulation using technology and specially equipped laboratories.

3. Increasing Nursing Student Admissions requires classroom and lab space:

State funded nursing programs in Idaho report the ability to increase capacity over the next 2 years with the increase in needed support for faculty salaries, professional staff, high-tech simulators, and physical space/facilities. Idaho schools report being able to increase 50 seats in practical nursing programs, 120 associate degree seats, 58 baccalaureate seats, 30 baccalaureate completion seats, and 30 masters degree seats in FY 2008. These programs further report the ability to increase 20 seats in practical nursing programs, 40 associate degree seats, 26 baccalaureate seats, 15 baccalaureate completion seats, and 20 masters degree seats in FY 2009. Total possible capacity increase over the next two years is 409 seats:

- 70 practical nursing seats
- 160 associate degree seats
- 84 baccalaureate degree seats
- 45 baccalaureate completion seats
- 50 masters degree seats

Increasing nursing student enrollments, however, requires a commitment of monies to support additional nursing faculty to teach these additional students, physical infrastructure to accommodate the increased enrollments, and technology and support services to address alternatives for clinical learning experiences for these additional numbers of students.

Total cost to support proposed increases in nursing student admissions: $7.6 million. This includes:

- Salary dollars: for increased number of nursing faculty, general education faculty, and professional staff needed to run the simulators and for advising. Increasing capacity requires increased advising both for pre-nursing and admitted nursing students.
- Specialized high-tech simulators for each school to assist with the lack of acute care clinical space.
- Physical space for offices, classrooms, and simulation labs.

Over the past 5 years nursing programs in the state have increased enrollments and numbers of graduates despite the limited additional state resources needed for these initiatives. However, as a result, many programs have now reached current capacity relative to classrooms and laboratories as well as faculty and staff office space. In addition, the infusion of high-tech simulation into programs requires laboratory space unique to the requirements of this form of technology.

Local hospital facilities have partnered with Idaho's colleges and universities in order to enhance the ability of nursing programs to add faculty positions and to build and equip classrooms and laboratories. However, Idaho's hospitals are also feeling the effects of our stressed health care system through shifts in federal and state reimbursements. Hospitals are beginning to indicate their intention to discontinue contributions that have supported faculty salaries, laboratory supplies and equipment and student loans and scholarships.

Colleges and universities are at the place where they can no longer increase capacity without additional funding to do so. Without additional monies to expand and grow, the space and resources necessary to accommodate the unique learning needs of nursing students, our educational institutions have reached or exceeded their physical capacity.

Recommendation:

It is recommended that admission to nursing programs be increased by approximately 50% or 400 additional students over the next 2 years.

It is further suggested that at the time that decisions are made regarding funding to address the nurse shortage, that nursing educators and nursing practice leaders (acute, long-term, and community) convene to provide direction in determining priority areas for increased capacity based on regional and statewide need and individual institution plans for increasing student capacity.

4. Assess and redesign nursing education to meet Idaho's changing health care needs

Nursing programs were surveyed on how many seats they could increase in the next two years if resources were provided. This provided a benchmark of how much increase in capacity is immediately available. However, the challenge to determine the kind and mix of nurses necessary to meet Idaho's health care needs has yet to be addressed. Idaho nurses are currently educated in a variety of ways—in both 1 and 2-year practical nursing programs and in associate, baccalaureate and master's degree RN programs.

The unique advantages and attributes offered by graduates of the different nursing education programs must be carefully considered as employers determine their future nursing needs. Also of importance are geographic regional needs for nurses, many of whom seek employment in communities where they complete their nursing education. Discussions related to these complex considerations have yet to be initiated.

It is essential we support capacity increases that are in alignment with appropriate practice and educational levels and with consideration to geographical needs of the state. In addition the ability of nurses to continue their education at Idaho schools through the Idaho nursing articulation plan must be supported. When capacity is increased in practical nursing, concurrent increase in number of seats for practical nurses to advance to RN programs should be considered. When capacity in associate degree RN programs is increased, capacity in baccalaureate and masters programs must also be considered to support Idaho's nurses in their pursuit of advanced degrees.

Two of Idaho's larger acute care facilities have achieved Magnet Hospital status in recognition of nursing excellence. Magnate hospitals are reported to have a high success of attracting and retaining nurses as a result of high level of job satisfaction among nurses who are involved in decision-making and patient care delivery. There are other facilities throughout the state that are currently on "the Magnet journey". Magnet status requires that a large percentage of the hospital's nurses are prepared with a baccalaureate or higher degree in nursing. With nearly 75% of Idaho's new graduate RNs educated with associate degrees and an additional 6,600 licensed RNs holding associate degrees as their highest level of education, the need for increasing opportunities for baccalaureate education seems even more crucial. Additionally, a baccalaureate degree in nursing is the first step toward the required graduate and post graduate degrees needed to teach nursing in Idaho's colleges and universities.

Without attention to support for baccalaureate and graduate education, Idaho's ability to respond to emerging trends supporting these levels of nursing education will be significantly delayed, a position that could adversely impact the state's ability to respond to the nurse shortage into the future.

Recommendation:

It is recommended that educators, in partnership with consumers, policy makers and other stakeholders, develop a statewide nursing education plan to best meet the evolving health care needs of Idaho's citizens. It is further recommended that decisions regarding future nursing education address essential competencies of nurses, program redundancy, and efficiency in the use of resources, among others.

DEVELOPING AND MAINTAINING A DIVERSE NURSING POPULATION

While there are more qualified applicants to Idaho's nursing programs than there are seats available, the applicant pool often lacks students from low income families and groups underrepresented in the profession. For many qualified students access is limited by financial, geographical, educational, cultural, and life situation constraints.

Financial Constraints:

Much more can be done to disseminate information about current student loan and scholarship programs to potential and current students. Higher education institutions and the health industries can widen the availability of such information to reach targeted students through online postings, radio and TV public service announcements, community flyers, and by supplying such information to high school counselors. Collaboration with the Idaho State Board of Education Student Affairs Programs Manager would help to identify and promulgate information on Federal programs that may apply to nursing education, especially community-based grant programs.

In addition to the above, augmenting current student loan, loan forgiveness, and work-study programs would provide support for students pursuing education leading to a career in nursing. For example, diverse student matriculation in nursing programs would increase if the number of awards and the amounts awarded were increased for targeted groups in the current loan forgiveness program and if it were expanded to all nursing degrees, including the MSN and PhD. Paid internships, work-study programs, and scholarships, especially for low income and underrepresented groups, also should be increased.

Geographical Constraints:

Access to nursing programs is often limited by the student's physical location, especially in rural and frontier areas of the State. Distance education provided through modern modalities such as the internet has helped to lessen this constraint and should be increased and, where needed, electronic infrastructure inadequacies should be addressed. Cohort courses in remote locations have also proven useful.

Educational Constraints:

Many students entering nursing programs are not sufficiently prepared in mathematics and the sciences. This often results in poor academic performance and consequential student attrition. Accordingly, the Task Force supports efforts by the Idaho State Board of Education to increase high school student competencies in mathematics and the sciences. In the meantime, the Task Force recommends increased State support for remedial and developmental education at higher education institutions, including the establishment of cohort remediation groups using students as tutors and mentors. Further, the Task Force

recommends that colleges and universities collaborate with high schools to offer more dual credit courses that prepare students for nursing. In addition, the Task Force recommends that the State Department of Education and the institutions of higher education establish pre-nursing advisors at high schools and on college campuses. These advisors would serve to recruit and advise students so that they receive the educational preparation necessary for success in nursing.

Existing articulation agreements should be enforced throughout the State to assure that credit for prior learning is available to qualified students. In other words, individuals should be able to utilize previous degrees and healthcare experience in transition to nursing programs. For example, paramedics, military personnel and other health care credentialed persons should be given the opportunity to validate their existing knowledge and skills through a challenge process so that they may advance place into nursing courses - based on the individual's ability to pass specified nursing courses. The committee recommends that the State of Idaho Nursing Articulation Committee (SNAC) address this matter further.

Cultural Constraints:
Colleges, universities, and the healthcare industries must be encouraged to reach out to underrepresented groups such as low income students, migrant farm workers' children, rural and frontier students, Native Americans, Hispanics, and other minorities. Marketing of the nursing profession and targeted recruitment to these groups will help to increase the numbers of these students and ultimately their representation in the profession.

Life Situation Constraints:
Working healthcare professionals and other highly qualified individuals often cannot avail themselves of existing nursing programs because of time limitations due to family or professional responsibilities. These constraints can be addressed through the provision of childcare facilities, innovative scheduling (e.g. nights and weekends), transition to nursing programs, cohort plans for rural areas, and mentoring programs within hospitals. Other initiatives to address such constraints include "round the calendar" scheduling, or short term intensive and other flexible curricula that accommodate a broader pool of students, especially the non-traditional, working students. Colleges and universities should work to increase such programs where appropriate and affordable.

Recommendation:

It is recommended that strategies be initiated to enhance recruitment of individuals into nursing to ensure a nursing workforce representative of the diversity of Idaho's population. Strategies should include:

- Plans to widely disseminate information related to available student financial assistance
- Augmentation of student loan and loan forgiveness programs
- Paid internships, increased work/study opportunities and student scholarships
- Increased opportunities for distance learning
- Increased efforts to recruit targeted populations
- Continued efforts to refine articulation agreements between and among programs and institutions

It is further recommended that efforts to address high school competencies especially in mathematics and the sciences be supported and that funding to support post-high school remedial and developmental education be provided to Idaho's postsecondary institutions. Included in this recommendation is support to increase dual credit courses offered through high school and college collaboration intended to prepare students for admission to nursing programs following high school graduation.

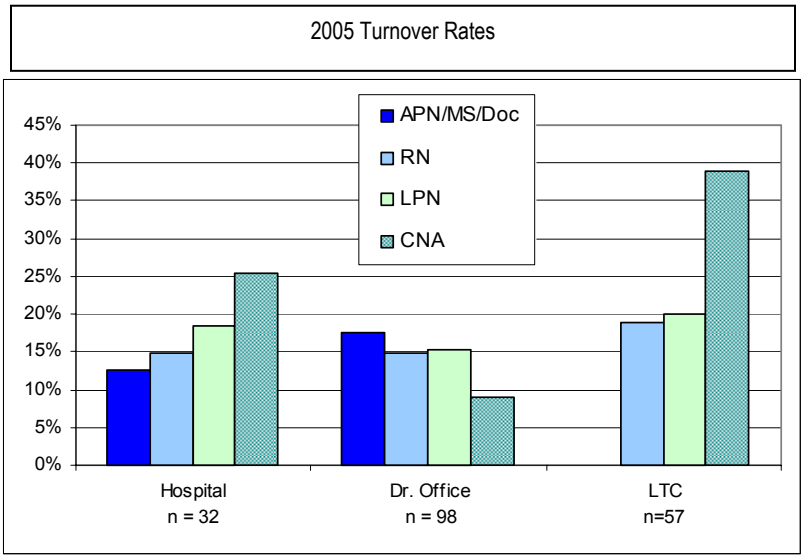
RETAINING THE CURRENT EXPERIENCED NURSING WORKFORCE

In order to adequately address the current nurse shortage, we must consider strategies to maintain Idaho's current nurses in active practice for as long as possible.

Efforts to increase the numbers of persons choosing nursing as their future career must be complemented by efforts to retain nurses in the profession once they have become licensed. Nursing is well known as a highly stressful, yet richly rewarding profession, albeit a profession that exposes nurses to high career burnout.

It is estimated that the average nursing career is 40 years long. When queried, 14% of Idaho's nurses indicated they plan to leave nursing practice within the next two years (BON 2005 Annual Report). Primary reasons given for their decision to exit the profession included retirement (not surprising, given the average age of Idaho's nurses), inadequate salary compensation, poor working conditions and job dissatisfaction.

A national survey of nurses found that one in three nurses under the age of 30 plans to leave the profession within a year (Aiken, Clark, Sloan 2001). Hospital and nursing homes report increasing nurse turnover rates as well as increased difficulty in filling positions vacated by nurses seeking new opportunities and new careers. Several surveys in recent years indicate a growing sense of job dissatisfaction among nurses, especially those employed in hospitals and nursing homes.



Dissatisfaction among nurses can be attributed, in part, to direct and indirect effects of the nurse shortage: insufficient staffing, unqualified staff, long hours and little opportunity for advancement. Also expressed is dissatisfaction with increasing amounts of paperwork and administrative responsibilities and less direct contact with patients and concerns for their own safety and health. In a recent American Hospital Association commissioned study (First Consulting Group study for the AHA, 2002) reports indicated emergency department overcrowding, reductions in number of staffed beds, discontinuation of programs and services and cancellation of elective surgeries, all a result of the current nurse shortage.

Nurses want to be able to provide quality care to their patients. They want to work in safe, supportive environments. They want to do the jobs they were educated to do. And they want the necessary resources to be able to do their jobs well.

Recommendation:

Idaho's health care employers should be challenged to take steps to address issues in the workplace environment in an effort to recruit nurses to and retain nurses in the profession, and also to encourage older nurses to remain in nursing practice beyond the usual retirement age.

CONTINUED PLANNING FOR AN ADEQUATE NURSING WORKFORCE

Continuing to collect accurate, comprehensive data is crucial as we implement strategies to address the nursing shortage. These new strategies must continually be evaluated in order to map their success and to appropriately modify them as different needs arise. Idaho must continue to monitor the number of nurses entering and leaving the profession so that projections can be updated and refined to assure informed planning for sufficient numbers of nurses to meet the state's needs. Ensuring high quality data will continue to be essential to Idaho's nursing workforce planning needs.

The Idaho Nursing Workforce Center was established in 2004 for this very purpose. Over the past two years it has emerged as a source of high-quality data regarding nursing supply and demand issues in Idaho. The Center has used a combination of collecting new data and bringing together existing data from various sources to accomplish this end.

The Idaho Nursing Workforce Center is administered by the Idaho Alliance of Leaders in Nursing (IALN), a 501(c)3 organization located in Boise. The Center is currently funded by a Health Resources and Services Administration grant based on Congressional earmark funds with Boise State University College of Health Sciences serving as fiscal agent and physical location for the Center. It is anticipated that Congressional monies to support the Center will at some point cease, at which time another form of long-term funding will be necessary to sustain the work of the Center. It is likely that State funding will be the required future funding source for the INWC.

It is essential that discussions about Idaho's healthcare workforce be broadened beyond concerns focused primarily on the nurse shortage and that development of a statewide plan for meeting Idaho's needs for a qualified healthcare workforce into the future be initiated. It is suggested that, with limited one-time funding, the Idaho Nursing Workforce Center could be charged to convene a group of experts to initiate this dialogue toward development of the suggested plan.

It is suggested that, over the long term, an Inter-Collegiate Center for Health Workforce might better serve Idaho's health workforce planning needs. The Center could be charged to bring together researchers from Idaho's 4-year research academic institutions to monitor not only the nursing shortage but also shortages in other health professions in Idaho such as pharmacists, respiratory therapists, and other professionals. Other workforce center models might also be explored to assure a system of data collection and analysis to best assist policy makers in their efforts to recognize and address the state's needs.

There is a need to continue the dialogue about Idaho's nursing workforce needs, if for no other reason than to assess the outcomes resulting from the recommendations included in this report in order to continue momentum toward the goal of ensuring an adequate nursing workforce in Idaho. Collaboration between nurse educators, nursing regulators and practice representatives (acute, long-term, and community) is imperative to sound decision making regarding the future of nursing and nursing education in this state.

Recommendation:

It is recommended that, upon discontinuance of Congressional earmark funds to support the work of the Idaho Nursing Workforce Center, $300,000/year be appropriated to sustain the INWC. It is further recommended that an appropriate state supported mechanism to ensure continued planning for an adequate nursing workforce for Idaho's long-term future be developed.

Section 3: Short- and Long-Range Strategies

The current nurse shortage is characterized by several distinct factors:

- An unprecedented growth in our state's population, especially the population over the age of 65
- An aging nurse population, many of whom will retire within the next 10 years
- High turnover and burnout rates among nurses in active practice
- Nursing faculty whose average age is over 50
- Difficulty in recruiting and retaining qualified nurse faculty in Idaho's colleges and universities
- The inability of our colleges and universities to educate a sufficient number of new nurses to replace those leaving the profession
- Needed continued collection and analysis of data to assist policy-makers in planning for an adequate nursing workforce into the future

Unless we adequately address these factors, responding to the nurse shortage will be extremely difficult, if not impossible.

Many of the challenges presented by the current nurse shortage cannot be resolved without a firm long-term commitment of public resources. None of them can be resolved without collaboration between the profession, the healthcare industry, and local and state government.

Idaho must implement strategies to retain our older nurses until the time that we have sufficient numbers of younger experienced nurses to meet the healthcare needs of our citizens. Steps must be taken to make nursing education more accessible and responsive to the needs of students and the demands of nurse employers. We need to do what is necessary to retain our current nurse faculty and to recruit new faculty to this rewarding role. And, we need to continue to study and analyze nurse supply and demand trends in order to continue to reverse the shortage and to best plan for our future.

SHORT-RANGE STRATEGIES:

It is recommended that:

1. The salaries of nursing faculty in Idaho's state colleges and universities be increased over the next 3 years to be competitive with industry standards. Estimated Cost: $3.8 million
2. Admissions to nursing programs be increased over the next 2 years by 50% or approximately 400 students. Estimated Cost: $7.6 million
3. Upon discontinuance of federal monies that support the work of the Idaho Nursing Workforce Center, state monies be appropriated to sustain the work of the Center. Estimated Cost: $300,000/year
4. Idaho support development of future nursing faculty with an additional 8 Western Interstate Commission on Higher Education (WICHE) seats over the next 4 years for students pursuing masters and doctoral degrees in nursing. And further, 20 scholarships in the amount of $6,000/year each be made available to students pursuing graduate and post-graduate degrees in nursing. Estimated Cost: $1.3 million
5. Expand and enhance financial support to undergraduate, graduate and postgraduate nursing students to offset the high costs of nursing education, including additional scholarships and loans. Estimated Cost: $600,000/year

LONGER-RANGE STRATEGIES:

To further support anticipated outcomes of the work of the Task Force, it is recommended that:

1. Loan forgiveness opportunities be extended to graduates who teach nursing in Idaho following graduation from their graduate and post graduate programs.
2. Opportunities to expand clinical learning alternatives be explored including statewide or regional coordination of clinical placements and innovation in clinical simulation using technology and specially equipped laboratories.
3. Educators, in partnership with consumers, policy makers and other stakeholders, develop a statewide nursing education plan to best meet the evolving health care needs of Idaho's citizens; and that decisions about nursing education address essential competencies of nurses, program redundancy and efficiency in the use of resources, among others.
4. Strategies be initiated to enhance recruitment of individuals into nursing to ensure a nursing workforce representative of the diversity of Idaho's population.
5. Efforts to address high school competencies, especially in math and the sciences, by supported
6. Idaho's health care employers be challenged to take steps to address issues in the workplace environment in an effort to recruit nurses to and retain nurses in the profession.
7. An appropriate state supported mechanism to ensure continued planning for an adequate nursing workforce for Idaho's long-term future be developed.

Section 4: Outcome Measures

Through its study and deliberation, the Task Force determined a number of strategies to increase the supply of nurses in Idaho to meet the anticipated increasing demand. The recommended strategies focus on five anticipated outcomes:

1. Increased ability to educate more nurses
2. Development and maintenance of a diverse nursing population that includes targeted populations
3. Development, recruitment and retention of sufficient numbers of qualified nursing faculty
4. Retention of the current experienced nursing workforce
5. Continued planning for an adequate nursing workforce for the future

To assess accomplishment of the suggested outcomes, the following outcome measures have been developed:

To measure Idaho's increased ability to educate more nurses:

a) Number and diversity of students enrolled in nursing education programs
b) Number and diversity of students graduating from nursing education programs
c) Increase in appropriated funds allocated to increase nursing education capacity

To measure the development and maintenance of a diverse nursing population that includes targeted populations:

a) Number and diversity of students enrolled in nursing education programs
b) Number and diversity of students graduating from nursing education programs
c) Level at which nursing workforce diversity reflects the diversity of the population served
d) Establishment of a campaign to inform nursing students of available financial assistance and loan forgiveness opportunities

To measure the development, recruitment and retention of sufficient numbers of qualified nursing faculty:

a) Number and diversity of students enrolled in educational programs preparing to become nursing faculty
b) Turnover rates for nursing faculty

To measure retention of the current nursing workforce:

a) Turnover rates for nursing personnel
b) Numbers of nurses who renew licenses every biennium
c) Numbers of nurses who report continued practice at time of renewal

To measure continued planning for an adequate nursing workforce for the future:

a) Establishment of an ongoing statewide system for data collection and analysis
b) Development of a statewide long-range plan for an adequate nursing workforce in Idaho
c) Proximity of nurse supply to nurse demand
d) Number of short- and long-range strategies presented in this report that are successfully implemented

References:

Aiken, L., Clarke, S., Sloane, D., et al (2001). "Nurses' reports of hospital quality of care and working conditions in five countries". Health Affairs

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Idaho Nursing Workforce Center (June 2006). Condition Critical: Who Will Provide Your Nursing Care in Idaho?

U.S. Department of Health and Human Services Health Resources and Services Administration Bureau of Health Professions National Center for Health Workforce Analysis (July 2002). Projected Supply, Demand, and Shortages of Registered Nurses: 2000-2020

SUBJECT

Student Aid Taskforce Recommendations

APPLICABLE STATUTE, RULE, OR POLICY

N/A

BACKGROUND

The Board's efforts at increasing high school graduation requirements will assist Idaho's students with their academic preparation, but financial preparation is also necessary for students to have access to postsecondary education. The State of Idaho offers two academic scholarships for students, but very minimal grants or scholarships based on need.

DISCUSSION

Tuition for Idaho's colleges and universities has risen an average 111.65 % in the last 10 years. While tuition is up, grants and financial aid has remained stagnant. A federal Pell grant will not cover the cost of tuition to attend an Idaho institution.

During the summer of 2006, a student aid taskforce was formed to look at this issue. The taskforce reviewed programs from around the country and has recommended a new need-based scholarship program focused on early awareness for students and a shared commitment between parents, students, Idaho post secondary institutions, the federal government and the state to prepare and provide resources for students to attend post high school education. It is based on the concept that if students and their families commit to do their part the state would commit to help them successfully complete post high school education or training opportunities.

There is a significant gap between what Idaho provides in need-based grant or scholarship aid and the nation. Here's how Idaho stacks up compared to other states in the need based awards per student:

- Idaho: $17
- Washington: $509
- United States Average: $387
- Western States Average: $299

The National MEASURING UP 2006 report shows we have a lot of work to do. Idaho received a "D" for higher education affordability. This is due in large part to the fact that the cost of attendance for one year of postsecondary education for a student takes approximately 1/3 of an Idaho family's annual income. (Note the cost of attendance is tuition, room and board, books, supplies, and transportation).

Forty-two percent of Idaho's school children qualify for the federal free and reduced lunch program. This means that nearly half of Idaho families are from

households where the family income is lower than 185% of the federal poverty level. Without financial assistance, many of these students, who are prepared to go to college, will be shut out of opportunities to improve their circumstances.

PROPOSAL

A committee of financial aid directors, students, parents, K-12 representatives, legislators and State Board members met for several months to develop a program for Idaho's students. The committee looked at successful state models and areas to address Idaho's unique challenges.

The committee created a draft proposal which focuses on early awareness for students and a shared commitment between the federal government, parents, students, institutions and the state. It is based on the concept that if students and their families commit to do their part the state would commit to do its part in helping them successfully complete post high school education or training opportunities.

Studies show the earlier students are introduced to higher education, the more likely they are to attend. Idaho's new grant program is designed to provide economically disadvantaged students in middle school and early high school with a guarantee of financial aid for postsecondary education or training if they meet certain requirements. The core requirements are:

- Promise from both the provider and recipient
- Graduation from a high school in the state
- Achievement of a minimum grade point average
- Successful completion of a core curriculum or specific coursework
- Application for admission to a public postsecondary institution in the state
- Submission of a federal and state financial aid application form while the student is in the senior year
- Participation in support activities for students selected to be in the early commitment program.

In Oklahoma, Indiana and Colorado, similar programs have proven successful in preparing students to successfully complete high school prepared to enter a postsecondary institution in the state.

SHARED RESPONSIBILITY

Idaho's model believes an individual must value their education as much as the state. Students must understand they have a price to pay too. The state should be the last stop on the financial aid train, not the first. The core requirements are:

- Students must work while in school and during the summers, save, or secure scholarships which will cover the student's portion of the cost of attendance.

- The student is required to apply for federal financial aid, while in high school, and the dollars contributed from the state are the "last dollars" in this model.
- Students must assure that they are putting forth the academic effort necessary to benefit from their education and to continue to receive funds; the student must attend school fulltime, and maintain satisfactory academic progress.
- The Idaho program is intended to dovetail with the new federally funded GEAR UP Idaho program so that more students from around the state will benefit from mentoring, advising and the financial assistance necessary for them to proceed from high school into college and to attain their degree in a timely manner.
- Students are eligible for a maximum of 8 semesters of assistance and will have a total of six years to use the funds.
- This program will supplement other types of financial aid, the family contribution, and students will be encouraged to seek work-study jobs on campus.
- The taskforce has also recommended the establishment of a trust account so that Idahoans and business partners can contribute to the fund. This plan hopes to provide additional incentives to support this program beyond just state appropriations.

IMPACT

The taskforce recommends two avenues of funding: a trust and yearly appropriations. The initial funding model is built with a request for $10 million. The program will be phased in with full implementation in FY2010. The funding model does include program administration. Additionally, a trust would be created to allow contributions from individuals and businesses and receive a task benefit.

ATTACHMENTS

N/A

STAFF COMMENTS AND RECOMMENDATIONS

Staff recommends that the Board support the recommendations of the taskforce and continue to work with key legislators and other stakeholders to implement a need-based grant program for Idaho which will improve the college-going rate and persistence to completion of Idaho's students. The proposed program dovetails with the Board's efforts to prepare students for postsecondary work and career readiness through increased graduation standards. This need-based program provides a financial incentive for Idaho disadvantaged students to prepare for postsecondary education while in high school. It should be noted that this program is focuses on encouraging students to enroll in postsecondary education and persist to completion thus minimizing the needs for remediation. This particular program does not address the needs of adult learners or adults

returning for retraining. Staff recommends that issues related to financial access of adult learner be addressed through a separate program.

BOARD ACTION

This item is for informational purposes only. Any action will be at the Board's discretion.

SUBJECT

High Need Teacher Loan Forgiveness Legislation

APPLICABLE STATUTE, RULE, OR POLICY

N/A

BACKGROUND

Idaho school districts often have difficulty in recruiting and retaining teachers in high need geographic and/or content areas. The rural nature of the state and the differences in the numbers of students that each district serves often make it difficult for smaller, remote or rural districts to recruit teachers. School districts with high percentages of special populations such as special education, Title I and LEP students also experience difficulty filling positions. In addition, certain content areas may experience a shortage of available teachers.

DISCUSSION

The State Department of Education publishes an annual report on teacher supply and demand in Idaho. That report identifies the number of applicants for particular positions and identifies the areas of greatest teacher shortage.

The Board program would provide state funds to address the shortage by offering tuition reimbursement, grants, loan forgiveness, or scholarships to individuals pursuing certification in a high need content area or pursuing employment in a high need geographic area. These funds would not be limited to degree seeking individuals. The program would allow individuals with a college degree to enroll in a certification program as well as provide an opportunity for individuals to seek a degree in education.

IMPACT

N/A

ATTACHMENTS

Attachment 1 – Statistical Information on Educational Positions in Idaho Page 3

STAFF COMMENTS AND RECOMMENDATIONS

Staff has no comments and recommendations.

BOARD ACTION

This item is for informational purposes only. Any action will be at the Board's discretion.

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8 Positions with the Least # of Applications per Vacancy

Subject Area	Number of Applicants	Number of Vacancies	Avg # of Applicants per Position
Speech/Language Pathology	49	39	1.26
Agriculture Science & Tech	25	16	1.56
School Nurse	33	17	1.94
Reading	102	45	2.27
Standard Exceptional Child	514	223	2.30
Technology Education (industrial arts	73	28	2.61
Educational Media Generalist	38	12	3.17
School Psychologist	77	22	3.50

10 Positions Most Difficult to Fill

Position	# of districts rating a #1 or a #2 (hard to fill or very hard to fill	# of districts reporting a vacancy in this job area	Percent rank
Spch Pathologist	16	17	94%
Early Child-Spec Ed	14	20	70%
Schl Psychologist	11	16	69%
Music	16	25	64%
Spec Ed Teacher	30	47	64%
Foreign Language	15	25	60%
Ag Science Tech	7	12	58%
Speech/Drama	7	12	58%
Family Cons Sci	9	17	53%

Positions Rated Most Difficult to Fill (1999-2005)

Rank	2001-02	2002-03	2003-04	2004-05	2005-06
1	Speech Path.	Music	EC-ECSE	Special Ed	Special Ed
2	Special Ed	ESL	Tech Ed.	Math	Math
3	Tech Ed	EC-ECSE	Speech Path	Music	English
4	EC-ECSE	Speech Path	Special Ed	ESL	Music
5	Music	Special Ed	ESL	Foreign Lang	Speech Path
6	School Psych	Tech Ed	Music	EC-ECSE	Foreign Lang
7	Fam/Cons Sci	Foreign Lang	Foreign Lang	Counselor	ESL
8	Foreign Lang	Biology	Counselor	English	Counselor
9	Math	School Psych	Math	Speech Path	Schl Psych
10	Counselor	Business Ed	English	Spch/Drama	Principal

Educator Supply and Demand in Idaho, 20th Annual Report, State Department of Education

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SUBJECT

Science and Technology Advisory Council (STAC) Legislative Stimulus Package

BACKGROUND

Earlier this year, Governor Jim Risch requested that the STAC make a bold legislative proposal with appropriate funding for his consideration to substantially stimulate and grow Idaho's science and technology education, commerce and research & development infrastructure. In response to this request the STAC has made an aggressive proposal that Governor Risch is considering for his budget.

Idaho has significant potential to grow its science and technology sector, thus increasing wages, household incomes, and employment opportunities, and supporting consequential expansion of construction, retail and service sectors of the economy.

DISCUSSION

This legislative package is divided into four areas: 1) Education; 2) Commerce; 3) Infrastructure; and 4) Oversight Organizations.

Budget recommendations included in this package total $38.8 million in General Fund Appropriations plus $10 million in Tax Credits.

Education

Research Matching Grant Program - $1.4 Million

Appropriate $1.4 million to the State Board of Education to meet the 1:2 grant-match requirement of the 2008 EPSCoR Research Infrastructure Improvement grant and to provide additional matching-grant funding to pursue matching grants that emphasize Idaho's core competency areas. This funding allows the universities to meet the matching-grant requirement of the 2008 EPSCoR program, which will provide $3 million a year in federal funding for research at the state's universities, and to pursue additional opportunities that fund research in Idaho's areas of high-tech expertise.

Increased High School Math and Science Standards

STAC endorses the Idaho Board of Education proposal to increase math and science requirements for high school students.

Expanded Access for Post-Secondary Education Opportunities

STAC endorses efforts to increase access to affordable post-secondary education, including expanding merit and needs-based scholarships and expanding professional technical and community college services.

Commerce

Technology Investment Tax Credit - $10 Million

Pass legislation that creates a Technology Investment Tax Credit to funnel and spur investment into targeted Idaho technology start-ups.

The Technology Investment Tax Credit would provide a 45% tax credit to those making investments into early-stage biosciences firms, and a 35% tax credit to those making investments into early-stage technology firms. A $10 million per year cap would be placed on the program, with a formal annual review process that would evaluate program successes and a renewal clause after five years.

Idaho Technology Marketing Fund - $2 Million
An Idaho Technology Marketing Fund should be created and funded at the $2 million level to raise awareness nationally and internationally, create a brand for Idaho as a science & technology state, and enable focused technology-based economic development throughout Commerce & Labor divisions.

The Council's intent is to create a Technology Marketing Fund that is at least equal in size to the funds used in marketing tourism (currently $1.98 million). Significant emphasis would be placed on technology-based economic development efforts throughout International, Office of Science & Technology and Economic Development divisions in Idaho Commerce & Labor.

Idaho TechConnect - $300,000
Funding for Idaho TechConnect should be ongoing at the $300,000 level and placed as a base item in the Commerce & Labor budget (earmarked contractually for Idaho TechConnect).

Idaho TechConnect is a statewide non-profit organization that provides technical assistance and links to resources and capital for entrepreneurs. The organization has four offices, one each in Nampa, Idaho Falls, Twin Falls and Post Falls. The program has received state support and some Commerce & Labor funds since its inception, but was first formally funded by Legislative appropriation in FY07 for $300,000. The program is required to meet contractual obligations to receive these pass-through funds.

Idaho Small Business Innovation Research (SBIR) Funding- $100,000
Provide $100,000 annually in Commerce & Labor's base budget to fund financial-assistance awards to Idaho small businesses through the Idaho SBIR Program.

The Idaho SBIR Program provides grants of up to $4,000 to eligible Idaho small businesses for use in offsetting the costs of developing competitive proposals for submission to the federal SBIR program. A one-time pilot-program appropriation of $100,000 was funded during FY07.

Infrastructure

Creation of Idaho Tech Stimulus Fund – Total $35 Million (two components):

1. **Renew Broadband Matching Grant Initiative - $10 million**
   The Broadband Matching Grant program, funded by the 2006 Legislature at the $5 million level, should be renewed at the $10 million level for FY08. The matching grant program provides an incentive for private broadband internet carriers to deliver service to rural communities. The minimum 1:1 match could enable a $20 million infusion into expanding the availability of service, promoting commerce and educational opportunities.

2. **Technology Capacity Stimulus Fund - $25 Million**
   A Stimulus Fund should be established that enables rapid response to technology infrastructure issues and building public-private partnerships within the state. These infrastructure pieces will include, but are not limited to, development of research labs, augmentation of university research professor recruitment, magnet programs and developing public-private partnerships. The Council recognizes the need for prudent management of this Fund, and the process of allocation. The Council welcomes interaction with the Governor and Legislature to identify the correct organization to administer this program. Members of the Council stand ready to help advise the administrating organization.

   Note: Details of how the Technology Capacity Stimulus Fund would be used in providing economic development-related funding are included in the attached proposal.

Other Oversight Organizations

Create a Broadband Task Force – The Council calls for the immediate convening of a task force that would identify needs and opportunities for broadband investment in Idaho. A report will be delivered by the end of the year on opportunities and needs for the $10 Million Matching Grant proposal funds. A longer term task force will explore additional and ongoing needs, opportunities and funding mechanisms.

Create a Senate Technology Committee – The Council called for a committee in the Idaho Senate that would provide needed focus for issues regarding technology infrastructure, industry and other needs for the state's largest industry sector.

IMPACT

A central role of the Advisory Council is to identify and recommend ways to implement the science and technology strategic plan. The following new legislative proposals by the Science & Technology Council provide policy

initiatives and financial resources to begin expansion of new research facilities, technology infrastructure, high-technology industry expansion, and educational capacity. This science and technology stimulus package should spur further success in developing a stronger Idaho economy.

STAFF COMMENTS AND RECOMMENDATIONS

Board staff and the VP of Research at the U of I, ISU and BSU have participated in developing this legislative proposal. The proposal includes Board initiatives on math and science, student financial aid and major research funding for higher education institutions. Staff recommends the Board supports the Science & Technology Advisory Council legislative initiative.

BOARD ACTION

This item is for informational purposes only. Any action will be at the Board's discretion.

SUBJECT

Review of Community College Interim Committee Recommendations

APPLICABLE STATUTE, RULE, OR POLICY

N/A

BACKGROUND

In 2006, the Legislature authorized the Legislative Council to appoint a committee to undertake and complete a thorough assessment of the role and mission of community colleges in Idaho including their benefits and needs.

The first meeting of the Community Colleges Interim Committee was held in Boise June 19, 2006 and Co-chaired by Senator John Goedde and Representative Darrell Bolz.

DISCUSSION

Final Recommendations (Draft 11-13-06)

1. Hold in committee the four drafts under consideration that would create a statewide community college system and that would add community colleges to the state system of postsecondary institutions (drafts MLI015, MLI029, and MLI044).

   Moved: Representative Smith
   Seconded: Representative Rusche
   Carried on a voice vote

2. Recommended two drafts, Draft MLI021 and MLI011 taken together, that reduce the majority required to approve formation of a community college district from a two thirds majority to a 60% majority, and that require all elections regarding community colleges to be held on one of the four dates established in law.

   Moved: Representative Smith
   Seconded: Senator Cameron
   Carried on a roll call vote (9 ayes, 8 nays)

3. Recommended that the state adopt a policy that moves to a standard fee charged for all professional-technical courses and programs, based on tuition and fees only. The State Board of Education and the presidents of the colleges and universities are invited to submit recommendations to the Legislature for implementation of this policy.

   Moved: Senator Cameron
   Seconded: Senator Malepeai
   Carried on a roll call vote (11 ayes, 7 nays)

4. Recommend reducing the maximum levy allowed by law for maintenance and operation of a community college, from .16% of the market value for assessment purposes to .125% of the market value for assessment purposes.

   Moved: Senator Langhorst
   Seconded: Senator Little
   Carried on a voice vote

5. Recommend Draft MLI013 that reduces the term of office of community college boards of trustees from six years to four years, and that ensures all trustees shall not be elected or reelected during the same election.

   Moved: Senator Davis
   Seconded: Representative Rydalch
   Carried on a voice vote

6. Recommend establishing by law a procedure for dissolving a community college district, based on Draft MLI028. Add an additional provision that provides a continuing revenue source until all debt and lawful claims against the dissolved district are discharged, if the proceeds from sale and disposition of community college properties and assets are insufficient to discharge all such debt or claims.

   Moved: Senator Davis
   Seconded: Representative Bolz
   Carried on a voice vote

7. Recommend Draft MLI019 to extend eligibility for application to the Robert R. Lee Promise Scholarship Program to "non-traditional" students who do not matriculate in college immediately following high school graduation or who are twenty-two years of age or older.

   Moved: Senator Lodge
   Seconded: Senator Davis
   Carried on a voice vote

8. Recommend the state develop a policy and a program that expands availability of needs-based scholarships in order to increase students' accessibility to a postsecondary education in Idaho.

   Moved: Representative Rusche
   Seconded: Senator Langhorst
   Carried on a roll call vote (14 ayes, 3 nays)

IMPACT

N/A

STAFF COMMENTS AND RECOMMENDATIONS

Staff offers no comments or recommendations.

BOARD ACTION

This item is for informational purposes only. Any action will be at the Board's discretion.

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SUBJECT

Update on the Grangeville School District Split

APPLICABLE STATUTE, RULE, OR POLICY

Section 33-312, Idaho Code. Division of School District

BACKGROUND

According to Section 33-312, Idaho Code, the State Board of Education may approve or disapprove a proposal to divide a school district. The District submitted a proposal to the State Board of Education requesting approval to divide Grangeville. The Joint School District No. 241 includes Elk City, Grangeville, Kooskia, Riggins, and White Bird.

DISCUSSION

The Board approved the proposal at their June 2006 Board meeting and counties have been informed and will proceed with an election on November 22, 2006. The results of the election will be available on November 28, 2006. If favorable, the State Board of Education will be responsible for appointing new Board members.

IMPACT

If the proposal is approved by the voters, the State Board of Education will need to establish a process for accepting applications for new trustees and should schedule a special meeting in December 2006 to appoint new trustees in order to allow the newly formed school board to begin operation as soon as possible.

ATTACHMENTS

N/A

STAFF COMMENTS AND RECOMMENDATIONS

Staff recommends that the Board schedule a special meeting in December if the proposal has been approved.

BOARD ACTION

This item is for informational purposes only. Any action will be at the Board's discretion.

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REFERENCE: APPLICABLE STATUTE, RULE, OR POLICY

TITLE 33
EDUCATION
CHAPTER 3
SCHOOL DISTRICTS

33-312. DIVISION OF SCHOOL DISTRICT. A school district may be divided so as to form not more than two (2) districts each of which must have continuous boundaries, in the manner hereinafter provided, except that any district which operates and maintains a secondary school or schools shall not be divided unless the two (2) districts created out of the division shall each operate and maintain a secondary school or schools immediately following such division.

A proposal to divide a school district may be initiated by its board of trustees and submitted to the state board of education. Such proposal shall contain all of the information required in a proposal to consolidate school districts as may be relevant to a proposal to divide a school district. It shall also show the manner in which it is proposed to divide or apportion the property and liabilities of the district, the names and numbers of the proposed new districts, and legal description of the proposed trustee zones.

Before submitting any proposal to divide a school district, the board of trustees shall hold a hearing or hearings on the proposal within the district. Notice of such hearing or hearings shall be posted by the clerk of the board of trustees in not less than three (3) public places within the district, one (1) of which places shall be at or near the main door of the administrative offices of the school district, for not less than ten (10) days before the date of such hearing or hearings.

The state board of education may approve or disapprove any such proposal submitted to it, and shall give notice thereof in the manner of a proposal to consolidate school districts; except, that the state board of education shall not approve any proposal which would result in a district to be created by the division having or assuming a bonded debt in an amount exceeding the limitations imposed by law, or which would leave the area of any city or village in more than one school district.

If the state board of education shall approve the proposal to divide the district, notice of the election shall be published, the election shall be held and conducted, and the ballots shall be canvassed, according to the provisions of sections 33-401--33-406. The division shall be approved only if a majority of all votes cast at said special election by the school district electors residing within the entire existing school district and voting in the election are in favor of the division of such district, and a majority of all votes cast at said special election by the qualified voters within that portion of the proposed new district having a minority of the number of qualified voters, such portion to be determined by the number of votes cast in each area which is a contemplated new district, are in favor of the division of the district, and upon such approval two (2) new school districts shall be thereby created. The organization and division of all school districts which have divided since June 30, 1963, are hereby validated.

If the division be approved, as herein provided, the board of canvassers shall thereupon notify the state board of education and the trustees of the district which has been divided. The state board shall give notice to the board of county commissioners of any county in which the newly created districts may lie.

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SUBJECT

Based on peer review, Idaho's Assessment System was approved under Title I of the Elementary and Secondary Education Act of 1965 (ESEA) as amended by the No Child Left Behind Act of 2001 (NCLB)

APPLICABLE STATUTE, RULE, OR POLICY

N/A

BACKGROUND

The Board has worked diligently to create an assessment system that meets the requirements of Improving America's Schools Act and No Child Left Behind. The Board received Full Approval with Recommendations from the Assistant Secretary of Education, Henry L. Johnson in a letter dated November 16, 2006.

DISCUSSION

The Board appreciates the hard work of staff from the Office of the State Board of Education, the State Department of Education and our new testing vendor Data Recognition Corporation in meeting the requirements necessary to gain this approval.

IMPACT

ISAT is a fully compliant assessment meeting all the technical requirements to provide a valid and reliable test aligned with Idaho content standards. No further fines will be assessed.

ATTACHMENTS

Attachment 1 - Letter from Assistant Secretary of Education Page 3

STAFF COMMENTS AND RECOMMENDATIONS

Staff has no comments or recommendations.

BOARD ACTION

This item is for informational purposes only. Any action will be at the Board's discretion.

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UNITED STATES DEPARTMENT OF EDUCATION
OFFICE OF ELEMENTARY AND SECONDARY EDUCATION

THE ASSISTANT SECRETARY

NOV 16 2006

The Honorable Dwight Johnson
Executive Director
Idaho State Board of Education
PO Box 83720
Boise, Idaho 83720-0037

The Honorable Marilyn Howard
Superintendent of Public Instruction
Idaho Department of Education
650 West State Street
PO Box 83720
Boise, Idaho 83720-0027

Dear Mr. Johnson and Dr. Howard:

I am pleased to approve Idaho's assessment system under Title I of the *Elementary and Secondary Education Act of 1965* (ESEA), as amended by the *No Child Left Behind Act of 2001* (NCLB). This approval also satisfies Idaho's remaining responsibilities to comply with the standards and assessment requirements under Title I of the ESEA, as amended by the *Improving America's Schools Act of 1994* (IASA), consistent with the compliance agreement executed between the Idaho State Board of Education (ISBE) and the Department on March 29, 2002. I congratulate you on meeting these important requirements.

My decision is based on input from peer reviewers external to the U.S. Department of Education (the Department) and Department staff who reviewed and carefully considered the evidence submitted by Idaho. I have concluded that the evidence demonstrates that Idaho's standards and assessment system satisfies both the IASA and NCLB requirements. Specifically, Idaho's system includes academic content standards in reading/language arts, mathematics, and science; student achievement standards in reading/language arts and mathematics; alternate achievement standards for students with the most significant cognitive disabilities in reading/language arts and mathematics; assessments in each of grades 3 through 8 and high school in reading/language arts and mathematics, and alternate assessments for those subjects.

Accordingly, Idaho's system warrants ***Full Approval with Recommendations***. This status means that Idaho's standards and assessment system meets *all* statutory and regulatory requirements but that the system could be strengthened in some ways. Specifically, though Idaho meets the requirements for academic achievement standards, we recommend that Idaho validate its academic achievement standards in summer 2007

to include broader-based representation of diverse stakeholders with greater numbers of panelists. In addition, we recommend that Idaho continue to work on alignment, including conducting an alignment study following the spring 2007 ISAT administration to examine the level of success of the State's major revisions and provide a basis for continued improvement. Finally, we recommend that Idaho formalize the process regarding how individual student results are delivered to parents, such as through a formal ISBE policy.

Please be aware that approval of Idaho's standards and assessment system under IASA and NCLB is not a determination that the system complies with Federal civil rights requirements, including Title VI of the *Civil Rights Act of 1964*, Title IX of the *Education Amendments of 1972*, Section 504 of the *Rehabilitation Act of 1973*, Title II of the *Americans with Disabilities Act*, and requirements under the *Individuals with Disabilities Education Act*. Finally, please remember that, if Idaho makes significant changes in its standards and assessment system, the State must submit information about those changes to the Department for review and approval.

We have found it a pleasure working with your staff on this review. Please accept my congratulations for your State's approved standards and assessment system under both IASA and NCLB. I wish you well in your continued efforts to improve student achievement in Idaho

Sincerely,

Henry L. Johnson

cc: Governor James Risch
Saundra DeKlotz
Rosemary Abell